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United States
Department of
Agriculture

Foreign Agricultural
Service

FAS M-298

Australia: Production and Marketing of Grain for Export

A Competition Report

Foreword

Australia is one of the world's leading grain exporting countries. Over the past 10 years, Australian participation in world grain markets has more than kept pace with the doubling in world grain trade, with the Australian share increasing from about 8 percent 10 years ago to nearly 10 percent during 1979/80. In the world wheat market alone, Australian participation is currently about 15 percent, slightly higher than a decade ago. During this same period, participation by both Canada and Argentina—the other major non-U.S. wheat exporting countries—decreased somewhat.

In view of Australia's importance to U.S. farmers in the competition for world trade in grains, the Foreign Agricultural Service undertook this report, which updates and broadens the scope of an earlier publication—FAS-M 171, *The Australian Wheat Marketing System,* issued in December 1965. Much of the material presented in this report was gathered on a visit to Australia by the author. Generous and extensive assistance was provided by officials of the Federal and State Governments, by officials of several Australian grain boards, including the Australian Wheat Board, and by leaders of Australian producer organizations, representatives of the private grain trade, and individual farm operators. We are also greatly indebted to Dr. Brice Meeker, the U.S. Agricultural Counselor in Canberra, and to Mr. Clifford DeGoede, Senior Economic Analyst in the office of the Agricultural Counselor, for their invaluable suggestions and guidance.

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OCTOBER 1980

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Australia: Production and Marketing of Grain for Export

A Competition Report

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OVERVIEW

Because of Australia's increasing importance among the major grain exporting nations, the Foreign Agricultural Service has undertaken a new and expanded analysis of production and marketing of grain for export in Australia. Since the last report in this series, published in December 1965,[1] annual Australian wheat exports have more than doubled, coarse grain exports have quadrupled, and rice exports have jumped by more than 600 percent. Between 1964/65 and 1979/80 the Australian share of world grain trade, including rice, has increased from 7 to 9 percent. As a share of Australian production, grain exports have increased from about 55 percent in 1964/65 to nearly 75 percent in 1979/80.

In 1979/80 (July/June) for the first time, Australian wheat exports are expected to exceed Canadian shipments—making Australia the world's second-largest exporter of wheat, after the United States. Whether this elevation in Australia's rank among the major wheat exporters can be sustained, however, is largely a question of production, rather than marketing, potential.

Under the current Wheat Industry Stabilization Act—which covers the 1979/80 through 1983/84 seasons and which is generally sympathetic to farmers—area sown to wheat is likely to expand beyond the 1978/79 record of 11.77 million hectares. However, prospects for an increase in national yields—which, at an average of less than 1.4 tons per hectare, are easily the lowest among the major wheat exporters—are not as favorable. As farmers move onto ever more marginal lands, where rainfall is particularly unreliable and soils are poor, average national yields could even decline.

Although Australian coarse grains generally take a comfortable back seat to wheat—with coarse grain exports accounting for less than 5 percent of world trade compared with over 15 percent for wheat—the Australian system of crop rotation has traditionally ensured that coarse grain area has tended to expand at about the same rate as wheat area. The new Wheat Industry Stabilization Act, however, delegates to the Australian Wheat Board new authority to set stockfeed wheat prices in competition with domestic coarse grain prices and guarantees wheat growers a first advance payment of 95 percent of the total return. A first payment of about 70-80 percent is made for barley, oats, and sorghum growers. Coarse grain area expansion is expected, therefore, to increase significantly less rapidly than wheat area. This is particularly true for barley since barley, like wheat, is grown primarily for export.

Depending on prices for range-fed beef, sorghum expansion potential into the northern, summer rainfall areas currently grazed by cattle could be considerable. In the past two decades, sorghum area has increased by the greatest percentage of all the grains except for rice. Unlike the small grains (wheat, barley, and oats), sorghum is a summer rainfall crop and therefore does not take its place in the normal crop rotation of the winter rainfall, wheat/sheep zone. In the northernmost tip of the wheat belt, which lies in the summer rainfall zone, sorghum is often doublecropped with wheat or rotated in alternate seasons. Since domestic demand has been constrained by a relatively stagnant intensive feeding sector, sorghum exports have dramatically increased during the past two decades.

Marketing arrangements for Australian coarse grains for both domestic and export markets are complicated and often poorly understood overseas.

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[1] See *The Australian Wheat Marketing System*, Foreign Agricultural Service, USDA: FAS-M 171, December 1965.

As a result, this report treats these arrangements with particular detail, emphasizing distinctions between statutory boards and farmer cooperatives, highlighting special arrangements with bulk-handling authorities whose chief responsibility is generally toward wheat movement, and examining export marketing arrangements.

Although still small by comparison with the wheat industry, the Australian rice industry is an especially intriguing sector of the Australian grain economy, with exports increasing at an average annual rate of about 25 percent. Yields are among the highest in the world, mills are sophisticated and modern, and marketing arrangements are as highly centralized as those of the Australian Wheat Board. Production potential in the largely undeveloped northern half of the country is, like that for sorghum, considerable.

Overall, grain accounts for about 25 percent of the gross value of Australian agricultural output and nearly 30 percent of the value of agricultural exports. Of the total area used for crops and sown pastures, area used for grain comprises nearly 35 percent. Over the past 5 years, as farmer returns from principally grain-growing enterprises have tended to increase relative to returns from livestock operations, area used for grain has also tended to increase, generally at the expense of area under sown pastures.

Exchange Rates, 1949-79
(US$ per $A)

1949	1.4690	1965	1.1140
1950	1.1158	1966	1.1128
1951	1.1154	1967	1.1125
1952	1.1132	1968	1.1125
1953	1.1206	1969	1.1110
1954	1.1190	1970	1.1137
1955	1.1121	1971	1.1361
1956	1.1138	1972	1.1923
1957	1.1129	1973	1.4195
1958	1.1195	1974	1.4391
1959	1.1190	1975	1.3102
1960	1.1186	1976	1.2252
1961	1.1165	1977	1.1090
1962	1.1187	1978	1.1447
1963	1.1155	1979	1.1179
1964	1.1124		

AUSTRALIAN WHEAT PRODUCTION AND MARKETING

PRODUCTION

In Australia, wheat is almost always grown in rotation with other crops or in combination with grazing activities. The prevalent use of legume pastures in rotations referred to as the ley-farming system, affords excellent pasturage and, for most of the country, is also the sole source of nitrogen for subsequent grain crops. In 1976/77, the average farm of 1,607 hectares had 236 hectares under wheat, 117 under other field crops, 1,109 under pasture, and the remainder either fallow or unused; there were 1,982 sheep and 147 cattle.[2] Due primarily to the economic efficiency of this system of crop/pasture rotation, this pattern of land use has remained essentially stable for the past two decades, with total farm area sown to wheat averaging about 15-20 percent annually.

Although area planted to wheat has steadily increased since the 1970s, over the longer term area has widely fluctuated. In 1930/31, it reached 7.3 million hectares, fell below 3.2 million during World War II, then recovered to almost 5.7 million by the time the Australian Wheat Board (AWB) was firmly established in 1947/48. Throughout most of the 1950s, area sown to wheat was between 4 million and 4.5 million hectares, but after 1958/59 it steadily climbed owing to favorable domestic returns, reaching a new record of 10.8 million hectares in 1968/69. The following year, when both Australian and world stocks were at record levels, the introduction of delivery quotas led to an immediate downturn in area that persisted through 1970/71.[3] Since 1971/72, area has again been rising, with expansion generally encouraged by increasing world demand for wheat, wool, and beef.

Fluctuating yields, induced by the notoriously unreliable and relatively scarce rainfall, are a striking characteristic of Australian wheat production. Between 1977/78 and 1978/79, for example, when area slightly expanded from 10.0 million to 10.1 million hectares, yields leaped from an average of 0.94 tons per hectare to 1.78 tons per hectare, because of a change from drought conditions to highly favorable weather. As a result, production almost doubled from 9.4 million to 18.0 million tons.

Although this wide variation in yields makes analysis difficult, a comparison of average yields for the past three decades shows little overall improvement.[4] The average yield was 1.13 tons per hectare between 1950/51 and 1959/60, 1.23 between

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[2] "The Australian Wheatgrowing Industry—Results of an Economic Survey: 1976/77" unpublished report, Bureau of Agricultural Economics, Canberra.

[3] For an elaboration of AWB policy during this period, see p. 12.

[4] See table 1, p. 3.

1960/61 and 1969/70, and 1.28 between 1970/71 and 1979/80. During the past decade, as production has spread onto marginal lands, nationwide yields have been able to maintain earlier levels mainly because of advances in plant breeding and heavy machinery technology. Future improvement in yields, however, is more likely to come from sophisticated management techniques—such as better on-farm appraisal of late sowing/early frost risks—than from new plant breeds or increased use of larger and more powerful machinery. In addition, serious constraints of soil erosion, disease, and insect damage are likely to hamper significant nationwide yield improvement in the foreseeable future.

Table 1.—Australian Wheat: Area, Yield, and Production, 1930/31-1979/80

Year	Area	Yield	Production
	1,000 hectares	*Tons/hectare*	*1,000 tons*
1930/31. .	7,351	0.79	5,813
1931/32. .	5,966	0.87	5,188
1932/33. .	6,380	0.91	5,822
1933/34. .	6,030	0.80	4,826
1934/35. .	5,076	0.71	3,630
1935/36. .	4,839	0.81	3,925
1936/37. .	4,984	0.83	4,120
1937/38. .	5,558	0.91	5,096
1938/39. .	5,806	0.73	4,228
1939/40. .	5,376	1.06	5,728
1940/41. .	5,117	0.44	2,238
1941/42. .	4,858	0.93	4,537
1942/43. .	3,756	1.13	4,238
1943/44. .	3,187	0.93	2,986
1944/45. .	3,425	0.42	1,439
1945/46. .	4,624	0.84	3,876
1946/47. .	5,334	0.60	3,191
1947/48. .	5,617	1.07	5,990
1948/49. .	5,092	1.02	5,190
1949/50. .	4,953	1.20	5,939
1950/51. .	4,720	1.06	5,014
1951/52. .	4,202	1.03	4,347
1952/53. .	4,132	1.28	5,313
1953/54. .	4,351	1.24	5,388
1954/55. .	5,319	1.06	4,589
1955/56. .	4,114	1.29	5,319
1956/57. .	3,187	1.15	3,659
1957/58. .	3,581	0.74	2,655
1958/59. .	4,208	1.39	5,855
1959/60. .	4,926	1.10	5,402
1960/61. .	5,439	1.37	7,449
1961/62. .	5,958	1.13	6,727
1962/63. .	6,665	1.25	8,353
1963/64. .	6,667	1.34	8,924
1964/65. .	7,251	1.38	10,037
1965/66. .	7,088	1.00	7,067
1966/67. .	8,427	1.51	12,699
1967/68. .	9,082	0.83	7,547
1968/69. .	10,845	1.36	14,804
1969/70. .	9,486	1.11	10,546
1970/71. .	6,478	1.22	7,890
1971/72. .	7,139	1.19	8,607
1972/73. .	7,603	0.85	6,590
1973/74. .	8,948	1.34	11,987
1974/75. .	8,308	1.37	11,357
1975/76. .	8,555	1.40	11,982
1976/77. .	8,956	1.32	11,800
1977/78. .	9,955	0.94	9,370
1978/79. .	10,113	1.78	18,037
1979/80. .	11,770	1.36	16,000

Source: Australian Bureau of Statistics and, for 1979/80 production, FAS data base.

Depending on weather, wheat is sown in late fall (May through June) and harvested in early summer (November through December). If delayed by excessively wet conditions or insufficient rainfall, sowing can also take place in July or even August in some locations. The wheat grown is a spring variety and requires a shorter period between planting and harvest than do winter wheats grown in North America. In general, summers are too hot and wet in the north for wheat cultivation in Australia and too dry in the south.

Although climatic conditions vary considerably throughout the belt, most of the wheat is grown in the 250-650 mm rainfall zone, where precipitation occurs mainly between May and October. The northeastern tip of the wheat belt, which straddles the New South Wales/Queensland border, lies in the summer rainfall zone, where precipitation averages 500-750 mm annually and occurs mainly between November and April.

Of the five basic soil groups under wheat in Australia, most, by world standards, are of relatively poor fertility.[5] Regular application of nitrogen—through the ley-farming method—and of phosphate are essential for responsive plant growth in most areas of the wheat belt.

In some parts of Western Australia wheat cannot be grown at all without extensive top dressing with superphosphate. The five soil groups are as follows:

1. Coastal, leached, acid soils in high rainfall areas. These soils are not commonly used for wheat growing, except in parts of Western Australia.
2. Red-brown soils of New South Wales, South Australia, and Victoria. Most of the wheat is grown on these soils, which generally lie between the 400-630 mm rainfall isohyets.
3. Mallee soils in the drier inland regions, adjacent to red-brown soils. These soils, where rainfall is less than 300 mm during the wheat-growing season, are prevalent in the marginal areas of the Australian wheat belt.
4. Grey-brown heavy soils in the Wimmera area of Victoria. This area marks the center of low-protein soft wheat production.

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[5] This section is based on information in *The Australian Wheat Industry*, AWB (Melbourne, 1979) and *The Australian Wheat Marketing System*, USDA, December 1965.

5. Fertile black soils of northern New South Wales and southern Queensland. These are among the most fertile soils in Australia and produce high protein hard wheat.

PRODUCTION BY STATES

Although New South Wales traditionally has been the largest grower of wheat, since 1973/74 wheat area in Western Australia has been greater. Consistently higher yields in New South Wales, however, have ensured that State's preeminence in terms of quantity produced. Preliminary estimates for the 1979/80 crop suggest wheat area of 4.47 million hectares in Western Australia compared with 3.58 million in New South Wales, and production of 3.67 million and 6.3 million tons, respectively.

Economies of scale are the most striking feature of **Western Australian** wheat production, where area sown to wheat averages about 1,600 hectares per farm. In the past 10 years, area has increased by 2.1 million hectares, or 89 percent. Future expansion will continue to be limited to arable land in the southwestern part of the State, but could be as much as 2 million hectares. In this westernmost section of the wheat belt, where yields are already the lowest in the Commonwealth, any significant carryover of water must be derived from the previous winter, so that in many areas a fallow period of 12 months or longer is required. Wheat crops are usually grown in alternate years, or even every third or forth year in inland areas.[6]

A significant portion of the wheat area in **New South Wales** lies in northern districts that receive both winter and summer rainfall, where water conservation through fallowing practices has contributed to yields that are among the highest in the Commonwealth. Parts of this region, such as the agriculturally prominent Darling Downs, are annually sown to wheat. In the past decade, New South Wales wheat area has increased by 1.4 million hectares, or 62 percent.[7] Expansion has been generally to the northwest, into marginal areas of light rainfall that have traditionally supported sheep farming. Expansion potential of about 4 million hectares is probably the greatest in the Commonwealth.

Average yields in **Victoria**, where farming is intensive and highly diversified, are also among the highest in the Commonwealth. In the past 10 years, area has expanded by 830,000 hectares, or 54 percent, but is likely to level off at the current area of 1.6 million hectares.

Increased land use in **South Australia** has occurred through more intensive plantings in wheat-producing areas, as well as through generally northward expansion into areas of lighter rainfall. South Australian area is also likely to level off at about the current level, i.e., about 1.4 million hectares. In the past decade, area has increased by about 620,000 hectares, or 77 percent.

Queensland, with less than 1 million hectares in wheat, has the smallest wheat area of any of the mainland States. The terrain has more dense brush and tree growth than virgin lands in Western Australia, since the climate is subtropical and rainfall is higher. Rainfall occurs predominantly during the summer, however, and expansion of wheat area much beyond the black soil zone of the south is unlikely. Area has increased by only 154,000 hectares, or 28 percent, in the last 10 years.

PRODUCTION POTENTIAL

Since, in Australia, wheat export potential is closely allied with wheat production potential, it is important to consider constraints on future wheat area expansion. Although the emphasis here will be on physical limits, it is essential to remember that most physical constraints are essentially economic constraints. Acceptable frequency of crop failure, production costs, and market demand can affect production levels as readily as inhospitable soils, climate, and terrain.

Only a small part of the Australian continent is not arid or seasonally arid. Out of a total land area of 768 million hectares, only about 30 percent, or 237 million hectares, receives sufficient moisture for arable agriculture. Imposition of a terrain constraint, restricting cultivation to level or gently sloping terrain, further reduces available area to 132 million hectares. Finally, application of soil constraints, excluding only those soils considered intractable with current technology, reduces area available for arable agriculture to only 77 million hectares. In 1979/80, total area used for crops was about 18 million hectares. Most of the uncropped arable land, however, is in the summer rainfall zone of northern Australia–which is unsuitable for wheat cropping–and is currently used for livestock grazing.

More than anything, the wheat crop cycle in Australia is effectively delimited by seasonal water supplies. In general, dryland wheat production is restricted to an arcuate zone (see map, page 5) that curves across the eastern and southern regions of the

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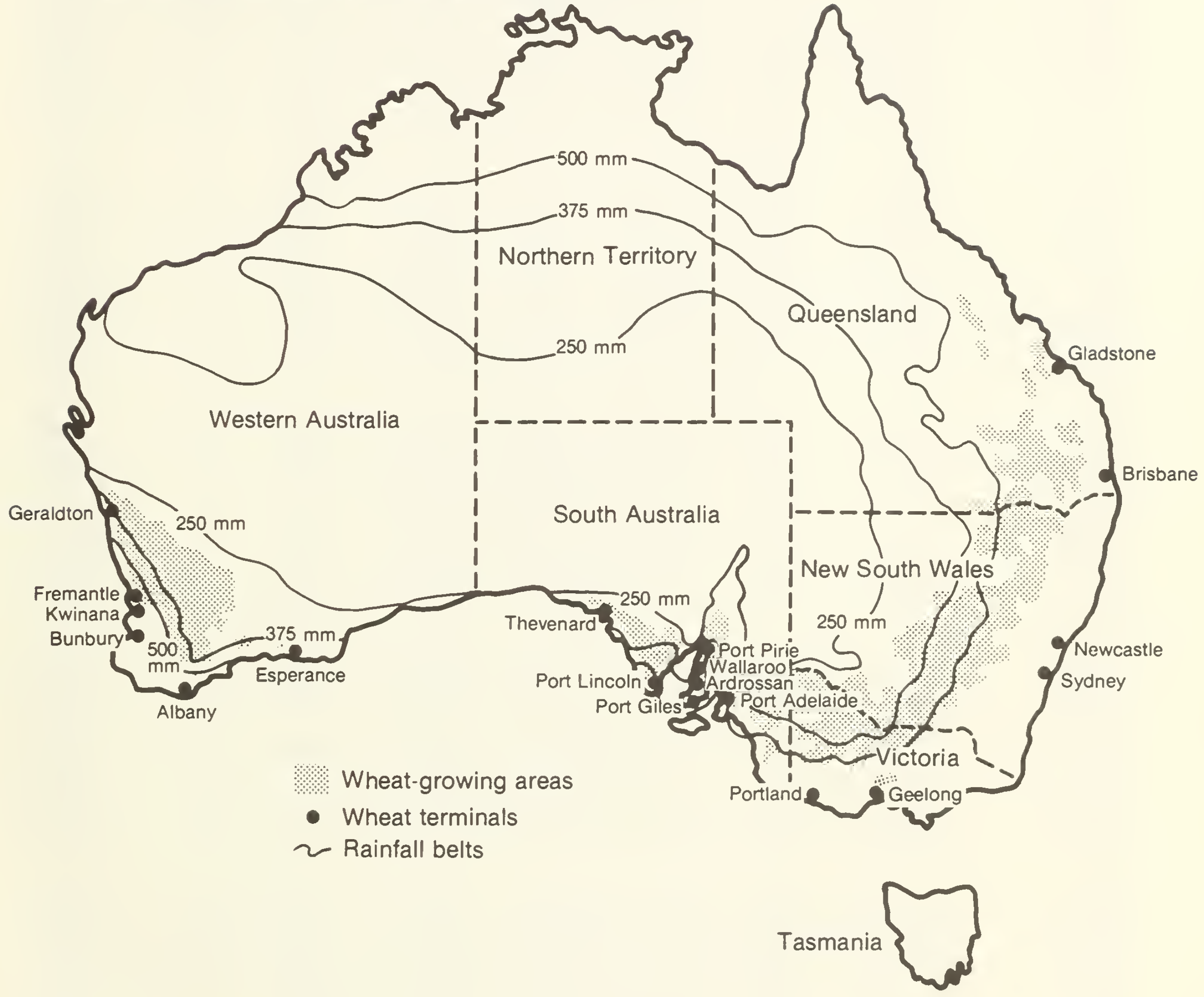
[6] For this and other information cited below, an interview with and several publications by Henry A. Nix have been of invaluable assistance. Publications include: "Resource Limitations: Land and Water," *Limits to Growth and Options for Action*, AIAS National Conference (Canberra, 1976) pp. 18-26; "Effects of the Australian Climate on Grain Yield and Quality," *Australian Field Crops* (Sydney: Angus and Robertson, 1971) pp. 183-226; and "Availability of Land for Energy Cropping in Australia", *Alcohol Fuels* (August 1978).

[7] See table 2, p. 6.

The Distribution of the Australian Wheat Crop



Source: *Annual Report: 1977/78*, The Australian Wheat Board

Table 2.–Australian Wheat Area, by States, 1930/31-1979/80

(In hectares)

Season	New South Wales	Victoria	South Australia	Western Australia	Queensland	Tasmania	Australian Capital Territory	Australia
1930/31.	2,078,048	1,861,638	1,691,796	1,600,843	110,202	7,732	834	7,351,093
1931/32.	1,490,437	1,443,059	1,647,628	1,278,358	100,679	4,744	701	5,965,606
1932/33.	1,944,090	1,307,523	1,645,771	1,371,624	101,191	8,492	1,391	6,380,082
1933/34.	1,855,119	1,235,479	1,546,628	1,288,204	93,909	9,752	1,249	6,030,340
1934/35.	1,575,350	994,955	1,290,231	1,118,704	89,731	6,740	746	5,076,457
1935/36.	1,558,598	940,391	1,209,805	1,028,185	96,975	4,210	656	4,838,820
1936/37.	1,611,810	968,749	1,237,715	1,042,182	114,788	8,627	593	4,984,464
1937/38.	1,806,788	1,087,010	1,279,512	1,224,751	150,922	8,531	832	5,558,346
1938/39.	1,882,144	1,112,224	1,246,596	1,381,120	178,878	3,986	834	5,805,782
1939/40.	1,772,767	1,144,217	1,106,653	1,202,085	146,514	3,033	990	5,376,259
1940/41.	1,802,457	1,081,616	1,036,155	1,062,464	130,342	3,253	827	5,117,114
1941/42.	1,606,102	1,115,752	941,186	1,073,802	117,683	2,596	524	4,857,645
1942/43.	1,227,391	868,115	813,026	709,487	135,483	1,670	455	3,755,627
1943/44.	1,089,942	725,776	620,714	634,150	113,839	1,958	574	3,186,953
1944/45.	1,151,253	866,728	656,864	613,408	134,504	1,551	613	3,424,921
1945/46.	1,527,246	1,315,794	876,147	742,915	158,840	2,016	737	4,623,695
1946/47.	1,810,928	1,416,861	1,019,384	981,680	100,361	3,051	1,318	5,333,583
1947/48.	2,040,840	1,305,988	961,078	1,117,114	187,062	3,147	1,935	5,617,164
1948/49.	1,634,304	1,212,321	834,882	1,160,445	245,948	2,779	1,685	5,092,364
1949/50.	1,623,498	1,144,563	767,416	1,171,170	242,817	2,215	1,805	4,953,484
1950/51.	1,346,994	1,107,008	747,775	1,289,084	226,130	2,152	776	4,719,920
1951/52.	1,114,230	996,974	652,810	1,252,316	183,947	1,458	422	4,202,157
1952/53.	1,093,608	903,299	624,739	1,213,846	293,193	2,706	246	4,131,637
1953/54.	1,358,486	966,918	618,513	1,167,566	234,705	3,922	635	4,350,745
1954/55.	1,181,146	967,270	683,557	1,205,621	278,182	2,955	316	4,319,047
1955/56.	1,188,677	866,599	651,152	1,169,375	235,419	2,519	299	4,114,040
1956/57.	705,099	633,423	582,056	1,118,749	145,667	1,578	26	3,186,598
1957/58.	913,538	742,535	538,760	1,196,741	186,414	2,381	214	3,580,583
1958/59.	1,286,098	732,493	569,561	1,332,170	284,901	2,605	573	4,208,401
1959/60.	1,598,667	914,886	627,061	1,504,865	276,455	3,345	709	4,925,988
1960/61.	1,649,546	1,081,160	796,998	1,627,335	280,284	2,798	429	5,438,550
1961/62.	1,820,377	1,152,863	902,131	1,772,425	303,386	6,300	572	5,958,054
1962/63.	2,026,754	1,264,560	1,050,219	1,944,031	371,872	6,208	974	6,664,618
1963/64.	2,008,786	1,258,308	1,134,035	1,877,920	379,436	7,107	1,143	6,666,735
1964/65.	2,331,029	1,309,581	1,103,509	2,084,647	415,014	6,801	847	7,251,428
1965/66.	1,852,219	1,244,047	1,110,808	2,488,710	385,972	5,709	543	7,088,008
1966/67.	2,887,394	1,269,929	1,197,983	2,568,387	496,703	5,159	1,079	8,426,634
1967/68.	3,324,459	1,304,660	1,159,084	2,689,988	597,555	4,864	946	9,081,556
1968/69.	4,031,354	1,612,304	1,516,933	2,952,224	723,815	7,039	1,683	10,845,352
1969/70.	3,489,469	1,334,758	1,298,935	2,747,082	608,668	5,962	1,090	9,485,964
1970/71.	2,215,693	760,423	802,298	2,361,147	333,897	4,479	485	6,478,422
1971/72.	2,425,395	1,041,554	1,068,553	2,041,888	555,990	4,570	414	7,138,864
1972/73.	2,618,065	1,086,548	986,066	2,437,412	470,622	4,251	289	7,603,253
1973/74.	2,882,971	1,257,915	1,431,885	2,977,920	394,702	2,521	320	8,948,235
1974/75.	2,646,336	1,140,653	1,220,430	2,809,883	488,500	1,535	204	8,307,541
1975/76.	2,774,100	1,073,130	958,453	3,171,289	576,202	1,644	408	8,555,226
1976/77.	3,115,757	1,103,230	839,115	3,313,942	582,005	1,980	361	8,956,390
1977/78.	3,377,413	1,270,263	1,089,975	3,608,871	606,791	1,257	295	9,954,865
1978/79.	3,128,000	1,334,000	1,286,000	3,646,000	718,000	1,200	300	10,113,000
1979/80.	3,580,000	1,590,000	1,420,000	4,470,000	710,000	1,500	300	11,770,000

Source: Australian Bureau of Statistics.

Table 3.–Australian Production of Wheat, by States, 1930/31-1979/80

(1,000 tons)

Season	New South Wales	Victoria	South Australia	Western Australia	Queensland	Tasmania	Australian Capital Territory	Australia
1930/31	1,793	1,464	949	1,456	139	11	1	5,813
1931/32	1,496	1,142	1,309	1,130	105	5	1	5,188
1932/33	2,146	1,302	1,155	1,137	68	12	2	5,822
1933/34	1,553	1,160	963	1,015	118	15	2	4,826
1934/35	1,325	704	747	734	111	8	1	3,630
1935/36	1,329	1,022	860	635	73	5	1	3,925
1936/37	1,515	1,166	781	586	55	16	1	4,120
1937/38	1,500	1,311	1,182	986	102	14	1	5,096
1938/39	1,630	493	862	1,003	233	6	2	4,228
1939/40	2,082	1,226	1,118	1,112	185	3	1	5,728
1940/41	651	368	486	573	155	4	1	2,238
1941/42	1,320	1,278	830	1,020	84	4	1	4,537
1942/43	1,407	1,138	994	561	135	2	1	4,238
1943/44	1,293	537	564	450	138	3	1	2,986
1944/45	466	95	252	433	190	3	–	1,439
1945/46	1,702	806	572	570	223	2	1	3,876
1946/47	427	1,333	759	648	18	4	2	3,191
1947/48	2,592	1,278	885	938	291	3	3	5,990
1948/49	1,761	1,335	711	987	390	4	2	5,190
1949/50	2,230	1,563	773	1,048	320	3	2	5,939
1950/51	1,178	1,394	842	1,358	238	3	1	5,014
1951/52	1,080	1,252	743	1,089	180	3	–	4,347
1952/53	1,542	1,370	923	966	508	4	–	5,313
1953/54	1,733	1,461	828	1,080	278	7	1	5,388
1954/55	1,027	1,320	856	934	448	4	–	4,589
1955/56	1,555	1,118	786	1,449	406	4	1	5,319
1956/57	775	960	855	874	193	2	–	6,659
1957/58	288	875	406	901	181	4	–	2,655
1958/59	1,808	1,162	873	1,569	438	4	1	5,855
1959/60	2,051	1,056	325	1,596	368	5	1	5,402
1960/61	2,304	1,839	1,263	1,739	299	4	1	7,449
1961/62	2,132	1,548	922	1,788	327	9	1	6,727
1962/63	2,967	1,848	1,043	1,974	508	11	2	8,353
1963/64	3,333	2,078	1,469	1,424	605	13	2	8,924
1964/65	4,123	2,127	1,437	1,718	621	10	1	10,037
1965/66	1,065	1,649	1,088	2,780	474	10	1	7,067
1966/67	5,511	1,929	1,465	2,809	973	10	2	12,699
1967/68	2,376	771	732	2,912	746	9	1	7,547
1968/69	5,855	2,469	2,263	3,060	1,144	11	2	14,804
1969/70	4,430	2,274	1,610	1,815	405	10	2	10,546
1970/71	3,010	1,004	790	2,957	120	8	1	7,890
1971/72	2,410	1,894	1,407	2,165	722	8	1	8,607
1972/73	1,954	1,405	815	2,003	405	8	–	6,590
1973/74	3,962	1,490	1,795	4,211	526	3	–	11,987
1974/75	3,809	2,091	1,486	3,277	692	2	–	11,357
1975/76	4,310	1,579	1,139	4,122	830	2	–	11,982
1976/77	5,141	1,779	832	3,249	794	4	1	11,800
1977/78	3,846	1,497	511	2,945	569	2	–	9,370
1978/79	6,640	3,013	2,081	4,390	1,909	4	–	18,037
1979/80	6,435	3,100	1,970	3,770	720	4	1	16,000

Source: Australian Bureau of Statistics.

country where winter rainfall (May through October) is dominant. Summer wheat cultivation is difficult in the north, where it is too wet and too hot, as well as in the south, where it is too dry.

The present wheat belt is bounded by lower and upper rainfall isohyets of 250 mm and 650 mm respectively. Inward expansion of wheat area, toward Australia's arid center, would likely require increased fallowing in addition to economic tolerance of a greater probability of crop failure. Fallowing techniques can be ineffective in marginal areas, however, due to soil characteristics and extreme evaporative conditions. Fallow water storage from summer rainfall is currently limited to northeastern Australia, where short summer fallows between successive winter crops contribute 10 to 30 percent of total water needs. In southern and western regions, any significant water storage must come from winter rainfall, necessitating a yearlong fallow, with cropping in alternate years.

Shifting the wheat belt outward, beyond the 650 mm isohyet, is as much a function of terrain as of evapotranspiration requirements. A wetter climate leads to increased disease and pest problems as well as erosion, which has been particularly severe in northern Australia where periods of high intensity rainfall are common. As a result, winter grain cultivation in this wetter zone is likely to remain restricted to grazing crops, such as oats.

In the coastal subregions of New South Wales, where much of the wheat crop is grown and where most of the Australian population lives, competition for land from urban and industrial projects has begun to force agriculture onto less favorable land. Further inland, high variability of seasonal rainfall has traditionally inhibited wheat production, although increased fallowing has led to some development in the past decade. Farther south, in the heart of the wheat/sheep zone, limits to crop area are already being approached. Although a relaxation of constraints imposed by fallowing, rotation, and pasturage requirements could occur under differing economic and technological conditions, in the near term annual area sown to wheat is likely to remain less than 25 percent of available area.

As a result of these considerations, annual area sown to wheat is not expected to exceed about 20 million hectares in the foreseeable future. Apart from more intensive cropping in the already established wheat/sheep zone, expansion potential is best in northwestern New South Wales and the southeastern sector of Western Australia. Although average wheat yields have not shown much improvement in Australia for the past three decades, an increase in the total annual wheat crop—in addition to area expansion—also could be achieved through improved management practices, the introduction of new plant varieties, and new technologies. As wheat production continues to spread onto ever more marginal land, however, a significant improvement in national average yields will remain difficult.

COSTS AND FARMER RETURN

In terms of area, value and output, and value of exports, wheat is unequaled as Australia's most important crop. For the 5 years ending with the 1979/80 season (December-November), wheat averaged 64 percent of the area sown to annual crops, 39 percent of the gross value of total crop production, and 18 percent of the gross value of total farm production.[8] The value of the 1979/80 near-record wheat crop of 16.0 million tons is estimated at over $A2 billion, or about one-fourth of the gross value of total farm output.

Australian wheat producers enjoy an essentially sound economic position. As indicated by a 1976/77 survey of farms growing more than 40 hectares of wheat and also not substantially engaged in seed or stud operations, the average rate of return to capital and management, including capital gains, averaged 17.1 percent, ranging from 18.8 percent in Victoria to 11.9 percent in New South Wales.[9] Excluding capital gains, returns averaged 5.7 percent. Equity averaged 91 percent and ranged from 94 percent in Victoria to 85 percent in Queensland, where Crown Land—or land leased from states—is still relatively common. Estimated rates of return, including capital gains, were 15.7 percent in 1977/78—a drought year—and 27.0 percent in 1978/79, when the Australian wheat crop reached a record 18.3 million tons.[10]

In 1976/77, the same survey indicated average total capital investment in wheat-growing properties was $A284,025, of which the components were land value and fixed improvements (76 percent), plants and machinery (15 percent), and livestock (9 percent). The value of land and structures was highest in Victoria ($A226/hectare) and lowest in Queensland ($A80/hectare).

In the same year, average cash receipts were $A70,392, ranging from $A49,572 in Victoria to $A97,579 in Western Australia. Since wheat receipts were generally the single largest component of total cash receipts, cash receipts tended to reflect the average size of wheat-growing properties in each State. In 1976/77 for the farms surveyed, about 50 percent of cash receipts were derived from wheat, 20 percent from wool, 15 percent from other crops, 10 percent from livestock, and the remaining 10 percent from other sources, including sharecropping. Nonfarm income was generally insubstantial and did not significantly add to average farm receipts.

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[8] "Trends in Australian Agricultural Commodities: Farm Costs and Farm Income," Bureau of Agricultural Economics, (June 1979), pp. 4-5.

[9] "The Australian Wheatgrowing Industry—Results of an Economic Survey: 1976/77," unpublished report, Bureau of Agriculture Economics.

[10] Gary Bond, "The Trend Toward Larger Cereal-growing Enterprises," *Rural Economy*, 1(4), 1979, pp. 287-91.

According to the same survey, average total cash costs in 1976/77 were $A33,474 and varied from $A45,996 in Western Australia to $A22,270 in Victoria, with differences following the pattern of cash receipts and generally explained by farm size. Costs included materials (50 percent), services (20 percent), wages and contracts (20 percent), and rent and interest (10 percent). Imputed costs for family labor and depreciation were not included.

Subtracting average total cash costs from average total cash receipts suggests a net cash income of $A36,918 in 1976/77. For 1977/78—when wheat production was substantially reduced by drought—net cash income was estimated at $A21,500, while the 1978/79 record wheat crop boosted net cash income to an estimated $A45,000.[11] Net farm income can be derived by deducting actual cash costs (less rent and interest) and imputed cash costs for family labor ($A4,948) and depreciation ($A10,600) from total cash receipts. Using this method, net farm income was $A21,791 in 1976/77.

A more direct measure of average grower return from wheat is provided by subtracting handling and storage costs and average rail freight from a grower's total pool payments. For the 1973/74 season, which is the last pool for which data on grower payments are complete, the average grower return was $A98.45 per ton ($A2.68 per bushel, or about US$3.86 per bushel). For the 1978/79 season, which was the first pool from which individual State handling and storage charges were deducted—rather than charges on an Australia-wide pooled basis—average grower return is estimated at about $A91.12 per ton ($A2.48 per bushel and about US$2.77 per bushel).

MARKETING

More than by any other single institution, the marketing of Australian wheat is dominated by the Australian Wheat Board (AWB). Acting over the years through authority provided by complementary Federal and State legislation, the AWB has directed virtually all stages of wheat marketing and movement once the grain leaves the farm gate. In most cases, farmer returns have been exclusively derived from wheat pools conducted by the AWB.

Before examining the organization and structure of Australian wheat marketing, it is important to review the legal division of authority between the Commonwealth and states, as presented in the Australian Constitution. Under the Constitution, states have authority over production from the soil and over interstate transportation.

Although Section 92 of the Constitution guarantees free trade between states, any regulation of this commerce between states, as well as any commerce with other nations, falls to the Commonwealth. The Commonwealth, as represented by Parliament, also has overruling powers during wartime. A 1978 decision by the Australian High Court ruled that Wheat Industry Stabilization Acts are valid because they are a regulation, and not a prohibition, of interstate trade. The Stabilization Acts have required that all wheat moving off-farm be delivered to the AWB.

WHEAT INDUSTRY STABILIZATION

Although national stabilization schemes for wheat did not become a feature of Australian rural policy until 1948, farmer interest in marketing reform existed prior to World War I.[12] It took the advent of this war for Parliament to use its Constitutional powers to establish the AWB, which it empowered to fix purchase prices, acquire the crop, and make advance payments to growers. Throughout the period, commercial traders acted as agents for the AWB for both domestic and export markets.

Following the 1920/21 season, Commonwealth authority over the wheat crop was dismantled and farmers turned, at first, to voluntary State pools. Although these pools were initially successful, after a few years farmers reverted to selling directly to traders, who could offer cash payment and, often, a higher return—as a result of dealing with a larger volume and with established marketing networks.

Nevertheless, throughout the 1930's both prices and export volume remained low. To investigate financial problems of the wheat industry, in 1934 Parliament established a Royal Commission. After studying the wheat, flour, and bread production and marketing industries, the Royal Commission recommended proposals to Parliament for centralized marketing arrangements and for a uniform home consumption price. This latter proposal was adopted through complementary state and Commonwealth legislation in 1938 and has since been incorporated into subsequent Wheat Industry Stabilization Acts.

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[11] "The Australian Wheatgrowing Industry—Results of an Economic Survey: 1976/77" unpublished report, Bureau of Agricultural Economics.

[12] Much of the information on the history of the Australian Wheat Board is taken from a conversation with Robert Rosenthal, agricultural economist, Queensland Department of Primary Industries and from his text, *Australian Wheat Marketing Arrangements*, (Brisbane: Department of Primary Industries, 1979).

Following the invocation of national security regulations resulting from the outbreak of World War II, the AWB was reestablished in 1939 "to purchase, sell, and dispose of wheat and wheaten products and to handle, store, and ship wheat."[13] Farmers were required to deliver all wheat other than that needed for on-farm feed and seed use to the AWB and were then compensated for their crop on the basis of a pooled return.

Although earlier legislation implementing a home consumption price ensured farmers a guaranteed return from sales on the domestic market, wheat exports still faced a depressed world price. Farmer pressure for a guaranteed minimum price led in 1940 to a guaranteed export price of $A14.50 per ton, f.o.r. basis, with a first advance of $A9.30 per ton. In turn, farmers were required to register cropland and to limit production to an average of area cropped during the 4 years ending with the 1940/41 season. The need for production controls resulted from limited storage facilities, shipping problems, and a switch in United Kingdom purchases from Australian to Canadian and U.S. wheat. A stabilization scheme was also established, wherein one-half of any proceeds from wheat sold at a price above $A14.50 per ton were placed in a fund to enable farmers to receive the guaranteed price in years of low world prices.

Variations on this theme of guaranteed pricing and production controls continued through 1944/45, when production quotas were lifted. A series of local droughts and rising world demand had led to a depletion of Australian stocks so that from 1945/46 on, licenses to grow wheat were liberally dispensed.

The first Wheat Industry Stabilization Act was passed in 1948. As with successive Stabilization Acts, legislation was first passed by Parliament and then approved by each of the States. In effect for the 5 seasons through 1952/53, this Act was designed to stabilize prices and farmers' incomes through continuation of the home consumption price and, for a fixed quantity of export wheat (2,680,000 tons per season), through a guaranteed minimum price based on a cost of production formula. The home consumption and guaranteed export prices were set by Administrative decree and were annually adjusted to reflect changes in farmers' cost of production, as determined in concert by the Australian Bureau of Agricultural Economics (BAE), the Australian Agricultural Council (AAC), and the Australian Wheatgrowers' Federation (AWF).

The Act also established a Stabilization Fund to which farmers contributed one-half of any amount above the guaranteed price ($A24.90 per ton in 1948/49), up to $A8.20 per ton. When export prices were below the guaranteed price, the difference was made up from monies from the Stabilization Fund or, if necessary, Federal revenues. During this period, however, world prices were generally double the guaranteed price. Total farmer return consisted of an average price from a pool of both domestic and export sales, less deductions for freight, handling, and administrative costs.

Although the first year of the stabilization scheme saw two prices in effect—the home consumption price and the export price—by the fourth and fifth years, four prices were applicable. In addition to the home consumption price and the guaranteed export price, farmers received a premium above the home consumption price for feed wheat and a reduced export price for wheat committed under the International Wheat Agreement (IWA).

Overall, the 5 years covered by the first Stabilization Act were a testing period and farmers responded to domestic and IWA prices considerably below the booming world level by a general movement of land utilization away from wheat and into wool production. Between 1948/49 and 1952/53 area sown to wheat decreased from 5.1 million to 4.1 million hectares.

Several new features were incorporated into the second Stabilization Act, which was in effect from 1953/54 through 1957/58: The freight and handling cost of shipping wheat from the mainland to Tasmania was transferred from farmers to consumers through a small increase in the home consumption price; Western Australian farmers were favored with a slightly higher total pool return as compensation for their relative geographic proximity to major export markets; and farmers were taxed 8 cents per ton toward State wheat research funds, which were matched by Government revenues through a Wheat Research Council.

Otherwise, the second Stabilization Act was much like the first. The AWB continued as the sole authorized marketing agent for both domestic and foreign sales of wheat; farmers continued to be assured a guaranteed price on 2,680,000 tons of export wheat; and both the home consumption and guaranteed export prices continued to be adjusted annually according to movements in the estimated cost of production. The Stabilization Fund continued to back up the guaranteed export price through grower contributions and, if necessary, consolidated funds. Total farmer contributions to the Stabilization Fund were limited, however, to $A40 million, as a result of heavy collections during the first plan.

Whereas under the first Stabilization Act, when world wheat prices were high, a guaranteed return covering costs of production was not an incentive to farmers to grow more wheat, under the second scheme world prices were low and the cost of production formula pushed both home consumption and guaranteed export prices above world levels. Under both schemes the home consumption and guaranteed export prices were required to be set at levels above the estimated cost of production. A further incentive to farmers was the first advance payment, which represented a high percentage of the total pool payment and which was paid promptly upon delivery of wheat.

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[13] Industries Assistance Commission Report, *Wheat Stabilization* (Canberra: Australian Government Publishing Service, 1978) p. 5.

Under the third Stabilization Act, which covered the 1958/59 through 1962/63 seasons, low world prices and a large export volume continued to exert pressure on the Stabilization Fund. Because of the manner of calculating the cost of production index, which for the first time incorporated actual market values for land, the third scheme was characterized by significantly increased home consumption and guaranteed export prices. As a result, during this period the Fund became severely depleted and Government revenues were used to make up the difference between the guaranteed price and the actual world price received. A comparison of surveys conducted in 1957 and 1962 by the BAE shows that while average farm size actually declined slightly during those years, average area sown to wheat increased from 121 to 151 hectares per farm. As a percentage of total farm return, wheat also increased from 40.5 percent in 1957 to 50 percent in 1962.

The most significant change incorporated into the third Stabilization Act was the method of calculating the home consumption price. Previously, the home consumption price had been set by Administrative decree according to recommendations by the BAE, AAC, and AWF and averaged about 105 percent of the annually estimated cost of production. Under the third scheme, the home consumption price was set equal to the cost of production index, plus the Tasmanian freight loading charge. The guaranteed price, for 2,680,000 tons of export wheat, was also set equal to the cost of production. The cost of production index itself was reached through estimates of both cash and imputed costs. Cash costs were determined by the Wheat Index Committee, composed of representatives of the AWF, BAE, and the Minister for Primary Industry. The estimate of imputed costs, such as depreciation, interest on farm capital, and farmer salary, was determined by the Ministry for Primary Industry, following testimony by the AWF.

Under the fourth Stabilization Act, which covered the seasons 1963/64 through 1967/68, the Stabilization Fund limit was increased to $A60 million. Due largely to an increase in average wheat yields from 1.03 to 1.13 tons per hectare, the cost of production index declined from $A59.30 per ton in 1962/63 to $A53.00 per ton in 1963/64, which also took some pressure off Stabilization Fund revenues. Nevertheless, during the fourth scheme, world prices remained considerably below guaranteed prices and Government funds continued to be used to support farm incomes. Furthermore, as compensation to farmers for a reduced home consumption price—which occurred directly as a result of the decrease in the cost of production index—the volume of export wheat insured by the guaranteed price was increased from 2.7 million to 4.0 million tons.

During the fourth Stabilization Plan, area sown to wheat rose from 9.1 million to about 11 million hectares. In a parallel development, the average size of farms growing at least 40 hectares of wheat increased from 845 hectares in 1962 to 1,035 hectares in 1967. With demand strong, the value of wheat property also increased, thereby pulling up the cost of production index in a self-perpetuating cycle. By the 1967/68 season, interest on farm capital (of which land was the chief component) accounted for $A23.50—nearly 40 percent of the total production cost of $A61.50.

The fifth Stabilization Act, which was in effect from 1968/69 until 1972/73, and then extended through 1973/74, set out to relieve the Commonwealth of some of the expense of stabilizing farmer income. For the first year of the scheme, the guaranteed price for a specified quantity of export wheat was set in relation to world wheat prices, taking into account the minimum price set under the International Grains Agreement, rather than set equal to domestic producer costs. During subsequent years, the guaranteed price was adjusted by the same monetary increase as the cost of production index, which now excluded, however, any imputation of interest on farm capital.

In exchange for AWF agreement to the reduction in the guaranteed export price from $A61.20 in 1967/68 to $A53.28 in 1968/69, the Commonwealth consented, under the fifth Stabilization Act, to extend the quantity of wheat covered by the guaranteed price from 4.0 million to 5.4 million tons. Simultaneously, the Stabilization Fund ceiling was boosted from $A60 to $A80 million—to be financed by farmer contributions whenever export returns exceeded the guaranteed price by $A1.85 per ton, subject to a maximum charge of $A5.60 per ton. Because of mounting carryover stocks, the fifth scheme also allowed the AWB to sell feed wheat at prices between the home consumption price—which continued to be set annually according to the cost of production index—and the guaranteed export price.

Concurrent with the fifth plan, although not a part of it, was legislation passed by both Federal and State governments to inhibit wheat production, known as the Wheat Delivery Quota Scheme. Inaugurated with the 1969/70 season, the scheme called for total deliveries to the AWB of no more than 9.7 million tons, compared with a record 14 million tons during 1968/69. Although methods of quota allotment varied by State, an individual's quota was generally based on the average size of deliveries over a given period. Quotas were subject to annual review. By the 1973/74 season, when world prices and demand were again on the upswing, the quota scheme was suspended, although enabling legislation remains on the books through the present.[14] The 1973/74 season also marked the first grower contributions to the Stabilization Fund since 1959/60.

Since compromise between the new Commonwealth Government and the AWF was difficult to attain, negotiations continued for 2 years and the sixth Wheat Stabilization Act did not begin until the 1974/75 season. On the recommendation of the Callaghan Inquiry—commissioned in 1972 by the Commonwealth to provide objectives for the sixth plan—the name for most prevalent Australian wheat was changed from Fair Average Quality to Australian Standard White (ASW). Another change recommended by the Callaghan Inquiry and incorporated into the new plan was extension of the AWB's charter to 7 years, commencing with the first year of the Stabilization Act, which continued to operate over a period of 5 years. This decision was prompted by the difficulties experienced during 1972 through 1974 in reaching a new stabilization scheme, and provided for some continuity in wheat marketing arrangements in the event of a similar delay in the future. Few additional recommendations by the Callaghan Inquiry were accepted, as a result of the sudden turnabout in the world wheat situation in 1972/73.

The most significant change heralded by the sixth Stabilization Act was a switch from the guaranteed export price to a stabilization price, which was designed to reflect more accurately movements in world export prices. Although for the 1974/75 season the stabilization price was set at $A73.49 per ton, for subsequent seasons this price was determined through the following formula:

$$SP_2 = SP_1 + \frac{EP_2 - A_1}{4}$$

where SP_2 = stabilization price for the current season; SP_1 = stabilization price for the preceding season; EP_2 = average (estimated) export price for the current season; A_1 = one-half of the sum of the average export price for the preceding season and the stabilization price for the season immediately before the preceding season.

This formula thus emphasized actual changes in annual export prices, rather than changes in domestic cash costs.

In the face of booming world prices, under the sixth plan total seasonal farmer contributions to the Stabilization Fund were limited to $A5.51 per ton or $A30 million, whichever was less. Contributions were paid whenever a season's average export return was above the stabilization price, so long as the stabilization price was at least $A55.12 per ton. This price was extended to all wheat sold for export—not just to a specified quantity, as in previous Stabilization Acts.

Similarly, seasonal Stabilization Fund payments to farmers were held to $A5.51 per ton or $A30 million, whichever was less; payments were made whenever the season's average export return was less than the stabilization price and farmer contributions were exhausted. In addition to the seasonal limits of $A30 million or $A5.51 per ton, this sixth scheme further restricted Commonwealth fiscal responsibility to $A80 million for the duration of the five-year plan.

Under the fifth stabilization scheme, there was no limit to either farmer or Commonwealth contributions beyond the $A80 million Fund ceiling. Finally, any Commonwealth contributions to the Fund were to be repaid during the 5-year plan whenever farmer contributions from subsequent pools became available. Once any indebtedness to the Commonwealth was repaid, contributions to the Stabilization Fund in excess of $A80 million were repaid to farmers according to participation in earlier pools.

Under the sixth scheme, the AWB was given authority to borrow money from commercial sources as well as from the Rural Credits Department of the Reserve Bank in order to meet first advance payments and to cover AWB operating expenses—subject to prior approval by the Minister of Primary Industries. The Commonwealth agreed to pay the difference between the higher cost of borrowing funds from the commercial market vis-a-vis the Reserve and also guaranteed compensation for any sales that the AWB was directed to make by the Commonwealth Prime Minister if such sales involved longer than normal periods of credit, or if the buyer failed to pay.

During the last season of the sixth scheme, Australia's High Court ruled to uphold the AWB's jurisdiction over all domestic wheat marketing, including interstate trade. The High Court's decision that the AWB's regulation of interstate trade did not conflict with Section 92 of the Australian Constitution, which guarantees free trade between states, affected as much as one-half million tons of mainly stockfeed wheat, with the volume of this non-AWB trade mainly dependent on overall crop size and world export prices. Particularly in areas bordering state lines, some farmers preferred to truck their own grain across the border directly to compounders, where they would receive full and immediate disbursement without the requisite deductions for freight, handling and storage costs, and the wheat research tax.

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[14] Should Australian wheat stocks again become burdensome, reimposition of delivery quotas could occur on short notice. However, since production and delivery controls fall under State jurisdiction, unanimous State approval would be required.

Dissatisfied farmers and traders, however, have challenged the High Court's decision and have already filed an appeal. The 1978 decision, which was split 3-2, might conceivably change, since one of the majority justices has left the court. Moreover, the Chief Justice wrote the minority opinion, declaring:

> "It is not established that the Government monopoly in trading in wheat is the only possible and reasonable manner of regulating trade and commerce in the commodity. . . .I cannot think the volume of wheat moved interstate for gristing can have any real impact on the Board's primary tasks for international disposal, after fulfilling domestic requirements, and price equalization and stabilization."[15]

The High Court is likely to reconsider the issue sometime during 1980.

The seventh and current Wheat Industry Stabilization Act, covering seasons from 1979/80 through 1983/84, somewhat strengthens the position of the AWB through addressing grower dissatisfactions with pricing and pooling arrangements and through extending to the AWB a more aggressive domestic marketing role. For the first time, the AWB will have direct pricing control over wheat for stockfeed and industrial purposes.

Over the past 10 years, the first advance payment as a proportion of final pool returns has varied from about 90 percent in 1969/70 to about 40 percent in 1974/75 and has averaged about 85 percent. Under the current scheme, farmers will receive a first advance payment—to be known as the guaranteed minimum price—that is 95 percent of the average of the combined estimated returns from the subject pool and the two preceding pools. Returns will be converted to a net basis, i.e. net all AWB pool costs. Estimates of the subject pool and of any earlier pool not yet finalized will be calculated by the AWB and BAE on behalf of the Commonwealth. Annual movements in the guaranteed minimum price will be limited to 15 percent, thereby reducing income uncertainty to the grower. The guaranteed minimum price for the 1979/80 season is $A114.71 per ton, although growers will receive about $A25 per ton less, as a result of deductions for individual freight between local delivery point and export terminal,

Table 4.—Australia: Payments to Wheat Growers

(Australian dollars per ton f.o.r., natural terminal ports basis)

Pool No.	Bulk	Bulk W.A.[1]	Bagged
1.	9.77	–	10.38
2 & 3	12.84	–	13.46
4.	13.93	–	14.81
5.	13.82	–	14.89
6.	16.38	–	17.30
7.	19.51	–	20.28
8.	17.71	–	18.63
9.	27.17	–	28.28
10	33.07	–	34.91
11	52.58	–	54.96
11A	50.15	–	52.53
12	41.46	–	44.16
13	47.79	–	50.94
14	46.35	–	51.66
15	52.34	–	58.49
16	55.03	–	59.05
17	44.33	45.14	46.75
18	44.00	44.80	46.32
18A	41.63	–	43.94
19	44.09	44.93	46.68
19A	42.09	42.05	44.67
19B	41.56	–	44.14
20	45.97	46.73	48.34
21	47.75	48.29	50.27
22	48.38	49.22	50.74
23	49.41	50.24	51.76
24	50.09	50.94	52.69
25	53.06	53.91	56.21
26	51.23	52.09	54.12
27	50.43	50.73	53.04
28	49.58	49.88	52.52
28	51.81	52.18	54.69
30	52.04	52.39	55.41
67/68	54.07	54.24	56.58
68/69	45.46	45.52	46.14
69/70	43.85	44.06	43.85
70/71	46.82	47.09	46.82
71/72	48.75	49.10	48.75
72/73	49.54	49.79	49.54
73/74[2] . . .	110.07	110.60	110.07
74/75[3, 4] . .	106.67	107.28	106.67
75/76[4] . . .	95.98	96.68	95.98
76/77[5] . . .	66.00	66.00	66.00
77/78[5] . . .	66.00	66.00	66.00

[1] No extra allowance was made to Western Australian growers until 1954.

[2] The 73/74 Pool payments include a finalized return of normal pool payments and refunds from the Stabilization Fund of $A5.71 per ton.

[3] The 74/75 Pool payments include a finalized return of normal Pool payments and a refund of $A1.73 per ton from the Stabilization Fund.

[4] Although finalized for normal pool payments, this Pool is still subject to refunds from the Stabilization Fund.

[5] Payments incomplete.

Source: Australian Wheat Board.

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[15] "Special Report: The High Court Wheat Judgement", *The Land* Sept. 14, 1978.

Table 5.—Australia Wheat: Principal Operating Costs, 1939/40-1977/78

Season	Pool No.	Tons in Pool	Holding and storage costs including depot and terminal costs		Freight to f.a.r. terminal position		Administration	
		1,000	*$A1,000*	*$A/Ton*	*$A1,000*	*$A/Ton*	*$A1,000*	*$A/Ton*
1939/40	2 & 3	5,319	7,070	1.33	7,628	1.43	191	0.04
1940/41	4	1,733	2,320	1.34	2,410	1.39	159	0.09
1941/42	5	4,190	5,594	1.33	5,896	1.41	210	0.05
1942/43	6	3,864	5,146	1.33	5,446	1.41	222	0.06
1943/44	7	2,579	4,344	1.68	3,764	1.46	226	0.09
1944/45	8	1,057	1,718	1.63	1,518	1.44	198	0.19
1945/46	9	3,373	3,324	.99	4,922	1.45	253	0.07
1946/47	10	2,693	3,084	1.14	3,592	1.33	237	0.09
1947/48	11	5,568	6,398	1.15	10,236	1.84	262	0.05
1948/49	12	4,763	4,946	1.04	9,258	1.94	331	0.07
1949/50	13	5,523	7,002	1.27	12,602	2.28	438	0.08
1950/51	14	4,630	6,718	1.45	12,128	2.62	533	0.12
1951/52	15	3,974	6,814	1.71	15,242	3.83	624	0.16
1952/53	16	4,893	8,436	1.72	22,310	4.56	633	0.13
1953/54	17	4,986	10,016	2.01	25,476	5.10	780	0.16
1954/55	18	4,157	10,036	2.41	20,020	4.82	813	0.20
1955/56	19	4,920	12,860	2.61	24,746	5.03	873	0.18
1956/57	20	3,269	9,086	2.78	15,488	4.74	915	0.28
1957/58	21	2,213	6,130	2.77	9,954	4.50	895	0.40
1958/59	22	5,427	11,940	2.20	27,374	5.04	965	0.18
1959/60	23	4,881	11,728	2.40	25,998	5.33	1,118	0.23
1960/61	24	6,844	14,842	2.17	37,430	5.47	1,172	0.17
1961/62	25	6,104	13,724	2.25	33,886	5.55	1,128	0.18
1962/63	26	7,776	15,828	2.04	45,358	5.83	1,277	0.16
1963/64	27	8,378	14,950	1.78	49,728	5.88	1,353	0.16
1964/65	28	9,430	17,796	1.89	57,846	6.13	1,448	0.15
1965/66	29	6,379	17,520	2.75	34,891	5.47	1,395	0.22
1966/67	30	11,954	24,788	2.07	78,733	6.59	1,582	0.13
1967/68	67/68	6,732	24,915	3.70	42,250	6.28	1,694	0.25
1968/69	68/69	14,033	41,241	2.94	94,106	6.71	1,812	0.13
1969/70[1]	69/70	8,472	41,359	4.88	57,083	6.74	2,505	0.30
1970/71[1]	70/71	7,764	30,852	3.97	50,994	6.57	2,745	0.35
1971/72[1]	71/72	7,504	28,868	3.85	47,636	6.35	3,184	0.42
1972/73[1]	72/73	6,052	35,046	5.79	36,498	6.03	3,054	0.50
1973/74	73/74	11,201	48,718	4.35	77,815	6.95	3,554	0.32
1974/75	74/75	10,706	53,760	5.02	86,751	8.10	4,219	0.39
1975/76	75/76	11,258	60,314	5.36	106,737	9.48	4,547	0.40
1976/77[2]	76/77	10,932	[3] 94,400	8.63	113,300	10.36	5,200	0.48
1977/78[2]	77/78	8,541	[3] 97,000	11.36	94,00	11.01	5,700	0.67

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[1] Handling costs shown refer only to quota wheat received for the season.

[2] Subject to revision.

[3] Handling costs for the 76/77 Pool and 77/78 Pool include shipping costs incurred by the bulk handling authorities.

Source: Australian Wheat Board.

State handling and storage costs, the wheat research tax, and the Wheat Finance Fund levy (see Table 4). Any difference between the net pool return and the guaranteed minimum price will be met by the Commonwealth.

Table 6.–Australia Wheat: Home Consumption Price, 1948/49-1979/80

(Australian dollars per ton)

Season	Human consumption	Stockfeed
1948/49	24.50	24.50
1949/50	24.50	[1] 24.50
1950/51	28.78	28.72
1951/52	36.74	[2] 44.09
1952/53	43.79	[2] 51.14
1953/54	51.90	51.90
1954/55	51.90	51.90
1955/56	49.45	49.45
1956/57	50.68	50.68
1957/58	52.67	52.67
1958/59	53.89	53.89
1959/60	55.12	55.12
1960/61	56.34	56.34
1961/62	58.18	58.18
1962/63	58.64	58.64
1963/64	53.58	53.58
1964/65	53.89	53.89
1965/66	56.22	56.22
1966/67	57.50	57.50
1967/68	60.81	60.81
1968/69	62.83	62.83
1969/70[3]	63.38	52.73
1970/71	63.93	53.28
1971/72	65.40	54.75
1972/73	67.63	56.97
1973/74	71.10	71.10
1974/75	83.40	83.40
1975/76	99.32	99.32
1976/77	105.40	105.40
1977/78	111.16	111.16
1978/79	116.62	[4] 115.00
1979/80	127.78	[5] 129.00

[1] The Commonwealth Government paid to the Board a subsidy of $A1.53 per ton to provide an agreed return of $A26.03 per ton, equivalent to the cost of production.

[2] For each of these seasons, the Commonwealth Government paid to the Board a subsidy on Stockfeed Sales at concessional prices to the pig, poultry, and dairy cattle industries to bring the return of $A59.10 per ton (the International Wheat Agreement price at which exports were effected). For sales in excess of 7.07 million tons per annum and for stock feed other than for poultry, pigs, and dairy cattle, the price was $A59.10 per ton.

[3] From 1969/70 to 1972/73 separate prices for wheat for human consumption and stock feed were reintroduced. The stock feed price shown was a basic price, which was varied upwards depending on the circumstances of the sale. The Board reverted back to a single home consumption price from 1973/74.

[4] As of July 13, 1979 for General Purpose (i.e., weather-damaged) wheat.

[5] As of late February 1980 for General Purpose wheat.

Source: Australian Wheat Board

With farmers receiving a higher initial payment, AWB borrowings and interest charges are expected to increase. As under previous schemes, the AWB will continue to be loaned funds from the Rural Credits Department of the Reserve Bank of Australia for a 12-month statutory repayment period. Should the Commonwealth ask the AWB to borrow from commercial sources within the statutory period applicable to the Reserve Bank—as it has recently, to suppress growth of the domestic money supply—any additional borrowing costs are reimbursed by the Commonwealth.

The seventh Stabilization Act also establishes a Wheat Finance Fund for the sole purpose of refinancing any indebtedness of the AWB to the Reserve Bank at the end of the 12-month statutory period. Funds amounting to $A80 million will be transferred to the Wheat Finance Fund from the previous plan's Stabilization Fund. Farmer contributions of $A2.50 per ton to the Wheat Finance Fund will be deducted from the guaranteed minimum price until the $A100 million ceiling has been reached. This is expected to occur during the 1979/80 season.

Any contributions received above the $A100 million ceiling will then be returned to farmers according to their deliveries to the oldest pool that has equity in the Fund. Should grower contributions be insufficient to cover AWB borrowing to meet the guaranteed minimum price and AWB operating costs, the Commonwealth will provide the difference. Whereas Government contributions under the sixth plan were restricted to $A80 million for the 5-year period, under the current plan, Government contributions are theoretically unlimited.

Although the current plan retains the AWB as the sole marketing authority for domestic and export wheat, farmers now have the option of delivering wheat directly to end-users, subject to AWB approval. As payment, farmers will still receive the guaranteed minimum price, Australia Standard White (ASW) port terminal basis, although additional adjustments for transportation costs between farm and delivery point and for any quality differential negotiated between farmer and end-user may also be made. Farmers will also receive any additional pool payments. The end-user pays the AWB the ASW port terminal price, as is the case with all buyers.

Another significant change under the seventh scheme is the introduction of distinct pricing provisions for three categories of wheat: For human consumption as flour; for stockfeed; and for industrial use as starch and starch derivatives. Previously, a single home-consumption price was announced annually by the Minister for Primary Industry, in accordance with the Wheat Index Committee's estimation of producer costs. Under the current plan it will be possible to have three prices for one grade of wheat, depending on end-use.

Under the seventh plan, the human consumption price is determined by a formula which, in addition to increases in net producer costs, takes into account the net export price for the year preceding the subject year. The formula is designed to lift the human consumption price to a level 20 percent above export prices over an 8-year period. As of early 1980, the home consumption price was about 15 percent below the AWB export price. The human consumption price is also limited to annual fluctuations of 20 percent.

For the 1979/80 season, the human consumption price for ASW is $A127.78 per ton f.o.r. port terminal basis, plus a $A3.00 loading charge for shipments to Tasmania. Since under previous plans there was a single home-consumption price for wheat, this loading was applied to all classes of wheat. The AWB annually sets premiums for Prime Hard and Hard wheat, on the basis of movements in the Consumer Price Index.

Prices for stockfeed wheat are not determined by formula, but instead are subject to biweekly review by the AWB. The AWB is expected to use its commercial judgment to set stockfeed prices in relation to prices of competing feedgrains. As a result, stockfeed wheat may be priced either above or below the human consumption price, depending on the level of export prices, but will be uniform on a port terminal basis. Buyers who sign contracts with the AWB for stockfeed wheat are offered quantity discounts. As of early 1980, the AWB price for ASW wheat for feed was $A135 per ton, for general purpose wheat $A129 per ton, and for feed wheat grade $A125 per ton.

The AWB's commercial judgment will also be called on to set the price of wheat for industrial purposes but, as in the case of stockfeed wheat, the price will be uniform on an export-port basis. Again, as in the case of stockfeed wheat, the Australian Agricultural Council—comprised of the Minister for Primary Industry and the Agricultural Ministers for each of the states—may suggest the AWB's pricing policy is not appropriate.

Overall, the seventh Stabilization Act is likely to strengthen the AWB's position, particularly in the domestic market, and could also have an impact on domestic production. In the domestic market, the AWB's new authority to price stockfeed wheat competitively against other feedgrains is likely to lead to increased stockfeed wheat sales. Over the past 20 years, stockfeed wheat prices have averaged about 35 percent more than feed barley prices.[16] This new pricing flexibility, in addition to the 1978 High Court decision, will dampen producer incentive to sell wheat to nonlicensed or unapproved buyers. The guaranteed minimum price will provide farmers with an augmented cash flow and will also remove considerable farmer price uncertainty, since the guaranteed minimum price can only fluctuate by 15 percent from one year to the next. Depending on expected pool returns for competing crops (primarily barley, but, in some cases, wool), the guaranteed minimum price could also encourage a perceptible increase in wheat sowings. It is important to remember, however, that wheat price guarantees under the previous scheme similarly favored wheat plantings over barley and oats and that seasonal weather conditions will continue to influence farmers at planting time.

The current plan could easily prove to be the most expensive of the wheat stabilization schemes. Although the increased initial payments will not affect the AWB's ability to hold stocks or diminish its ability to offer credit to buyers, at times of high carryover stocks, such as the present, the AWB will need to draw on virtually all of the Wheat Finance Fund as well as high-interest commercial borrowings to refinance any indebtedness to the Reserve Bank at the end of the statutory 12-month repayment period. Furthermore, the higher first advance will expand initial borrowings and, consequently, will make carryover stocks and credit offerings more costly due to increased interest charges.

AUSTRALIAN WHEAT BOARD: STRUCTURE AND OPERATIONS

The AWB consists of 15 members, of which 10 are recommended by farmers in each of the mainland states and then appointed by the Minister for Primary Industry, acting on behalf of the Commonwealth. Although farmer representatives do not have to be members of local farmer organizations—which, at the national level, are represented by the AWF—traditionally they have been. The chairman of the AWB and members representing commercial, financial, milling, and employee interests are directly appointed by the Minister. All members serve 3-year terms and may be reelected. The AWB also has a general manager, a deputy general manager, and three assistant general managers who are responsible for Board operations. Executive offices are in Melbourne.

By statutory authority reinforced by the 1978 High Court decision, all wheat moving off-farm—except wheat transferred from the farm where it was grown to another farm under the same ownership—must be delivered to AWB-licensed receivers. Under the current Stabilization Act, wheat may also be delivered to nonlicensed receivers, but only with prior AWB approval. The AWB has designated bulk handling authorities (BHAs) in each state as licensed

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[16] Lynn Austin, 'Latest Australian Wheat Plan To Have Largest Impact on Domestic Production,' *Foreign Agriculture,* USDA (February 1980) p. 11.

Table 7.–Australia Wheat: Receivals by the Board, 1938/39-1977/78

(Gross weight receivals in tons)

Season	New South Wales	Victoria[1]	South Australia	Western Australia	Queensland	Tasmania	Australia
1938/39[2]	170,533	76,326	160,123	79,018	–	–	486,600
1939/40	1,814,967	1,278,046	1,037,719	1,017,046	170,237	1,110	5,319,125
1940/41	460,469	271,747	376,064	478,306	143,876	2,042	1,732,504
1941/42	1,122,245	1,310,015	754,911	927,435	72,935	2,125	4,189,666
1942/43	1,216,789	1,094,410	943,515	489,396	119,826	588	3,864,324
1943/44	1,112,551	468,841	493,703	377,046	125,169	1,536	2,578,846
1944/45	331,160	25,596	183,956	356,009	158,848	1,089	1,056,658
1945/46	1,493,841	697,282	494,297	482,861	203,908	638	3,372,827
1946/47	235,012	1,210,615	675,438	558,505	12,088	1,850	2,693,508
1947/48	2,433,500	1,208,431	804,821	847,170	272,627	1,596	5,568,145
1948/49	1,588,239	1,269,918	639,976	893,424	368,618	2,800	4,762,975
1949/50	2,053,395	1,503,335	717,867	941,145	304,685	2,399	5,522,826
1950/51	1,014,922	1,345,265	803,491	1,254,323	209,888	1,625	4,629,514
1951/52	921,333	1,191,113	701,434	990,974	167,877	1,316	3,974,047
1952/53	1,404,580	1,291,728	875,552	862,804	456,577	2,381	4,893,622
1953/54	1,574,264	1,421,158	754,176	984,219	247,714	4,378	4,985,909
1954/55	881,366	1,263,661	779,352	833,557	397,478	1,786	4,157,200
1955/56	1,409,461	1,063,570	710,527	1,351,226	383,688	1,068	4,919,540
1956/57	653,558	896,236	793,448	766,699	158,864	603	3,269,408
1957/58	125,645	804,130	341,158	797,567	142,813	2,009	2,213,322
1958/59	1,632,977	1,121,935	804,201	1,452,057	413,843	2,240	5,427,253
1959/60	1,825,439	1,009,665	247,990	1,473,240	322,006	2,475	4,880,815
1960/61	1,986,501	1,820,354	1,189,490	1,606,064	240,074	1,712	6,844,195
1961/62	1,844,775	1,500,139	836,539	1,645,413	271,640	5,669	6,104,175
1962/63	2,685,534	1,829,290	955,824	1,820,653	477,286	7,494	7,776,081
1963/64	3,013,361	2,115,407	1,405,965	1,281,073	553,302	8,840	8,377,948
1964/65	3,741,983	2,195,880	1,360,533	1,563,267	563,701	5,122	9,430,486
1965/66	749,997	1,658,066	984,118	2,608,260	372,870	5,915	6,379,226
1966/67	5,025,172	2,030,935	1,360,979	2,635,298	894,957	6,720	11,954,061
1967/68	1,986,904	757,107	601,021	2,719,917	663,164	4,195	6,732,308
1968/69	5,356,888	2,576,566	2,162,205	2,875,563	1,056,130	5,710	14,033,062
1969/70	3,965,856	2,343,052	1,517,436	1,597,601	325,969	4,924	9,754,838
1970/71	2,554,494	894,201	681,010	2,712,407	90,214	3,324	6,935,650
1971/72	2,007,750	1,754,295	1,305,884	1,927,360	665,877	4,837	7,666,003
1972/73	1,453,543	1,169,672	711,423	1,775,048	325,445	3,640	5,438,771
1973/74	3,544,268	1,518,792	1,671,894	3,989,353	473,759	1,841	11,199,907
1974/75	3,462,163	2,147,824	1,377,453	3,058,685	657,601	832	10,704,558
1975/76	3,906,598	1,615,227	1,040,742	3,896,984	798,393	505	11,258,449
1976/77	4,619,185	1,782,336	724,890	3,051,839	752,145	1,885	10,932,280
1977/78	3,309,464	1,534,345	416,930	2,748,794	532,359	273	8,542,165

[1] The Victorian receivals include wheat grown in New South Wales, but delivered to Victorian Licensed Receivers.

[2] Wheat received in 1938/39 season comprises balance of wheat stocks in Australia that were acquired by the Board on its inception in September 1939.

Source: Australian Wheat Board.

Table 8.–Australia Wheat: Receivals by Class and Grade, 1968/69-1977/78

(1,000 tons, net)

Class/grade	New South Wales			Victoria	South Australia	Western Australia	Queensland	Tasmania	Australia
	Northern	South/West[1]	Total						
Australian Prime Hard									
1968/69	724	116	840	–	–	–	886	–	1,726
1969/70	110	101	211	–	–	–	34	–	245
1970/71	255	92	347	–	–	–	62	–	409
1971/72	347	82	429	–	–	–	505	–	934
1972/73	92	13	105	–	–	–	164	–	269
1973/74	395	43	438	–	–	–	67	–	505
1974/75	681	166	847	–	–	–	124	–	971
1975/76	650	111	761	–	–	–	162	–	923
1976/77	754	140	894	–	–	–	53	–	947
1977/78	774	167	941	–	–	–	263	–	1,204
Australian Hard									
1968/69	–	–	–	–	253	–	–	–	253
1969/70	125	–	125	–	284	–	163	–	572
1970/71	34	48	82	20	102	–	18	–	223
1971/72	74	72	146	54	117	–	–	–	317
1972/73	6	213	219	28	153	65	118	–	583
1973/74	425	337	761	39	108	67	269	–	1,244
1974/75	332	259	591	28	235	76	226	–	1,156
1975/76	847	308	1,155	1	272	40	343	–	1,811
1976/77	1,054	372	1,426	5	288	26	266	–	2,011
1977/78	583	519	1,102	65	104	59	132	–	1,462
Australian Standard White[2]									
1968/69	1,116	3,127	4,242	2,558	1,914	2,748	110	6	11,578
1969/70	–	2,024	2,024	2,275	1,201	1,560	–	5	7,065
1970/71	50	1,443	1,493	857	573	2,667	–	3	5,604
1971/72	207	984	1,191	1,609	1,044	1,652	125	5	5,626
1972/73	86	912	998	1,131	561	1,623	–	4	4,317
1973/74	100	1,156	1,256	989	1,215	3,745	80	1	7,285
1974/75	153	1,715	1,868	2,095	835	2,874	96	–	7,768
1975/76	90	1,304	1,434	1,023	693	3,640	162	1	6,953
1976/77	50	1,740	1,790	1,736	424	2,861	218	2	7,031
1977/78	55	1,029	1,084	1,419	306	2,420	113	–	5,342

See footnotes at end of table.

continued

Table 8.—Australia Wheat: Receivals by Class and Grade, 1968/69-1977/78—Continued

(1,000 tons, net)

Class/grade	New South Wales			Victoria	South Australia	Western Australia	Queensland	Tasmania	Australia
	Northern	South/West[1]	Total						
Australian General Purpose[3]									
1968/69	164	82	247	18	17	127	27	–	436
1969/70	1,581	27	1,608	63	31	38	119	–	1,859
1970/71	355	309	664	14	6	21	8	–	714
1971/72	74	166	240	85	135	265	36	–	762
1972/73	100	22	122	3	4	78	67	–	274
1973/74	200	863	1,063	483	341	158	57	1	2,104
1974/75	77	75	152	14	303	94	204	–	767
1975/76	75	484	559	582	74	198	127	–	1,540
1976/77	116	390	506	33	10	150	212	–	911
1977/78	41	124	165	43	9	256	23	–	496

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[1] Wheat from the Australian Capital Territory is received into the South/West classification of New South Wales.

[2] Australian Standard White includes ASW (soft varieties), Australian Durum and Australian Soft.

[3] Australian General Purpose includes weather-damaged, lightweight, and Australian Feed wheat.

Source: Australian Wheat Board.

receivers. In New South Wales, Victoria, and Queensland, BHAs are statutory authorities; in Western Australia and South Australia, BHAs are farmer cooperatives. Certain processors and agents are also licensed by the AWB to receive wheat directly from farmers.

Upon receival, all wheat becomes "the absolute property of the Australian Wheat Board freed from all mortgages, charges, liens, pledges, interests, and trusts."[17] The AWB must accept all wheat delivered to it, although, when a BHA's storage facilities are full, farmers may be asked to store wheat temporarily on-farm. Farmers are reimbursed about $A2.00 per ton for on-farm storage for the period until they can deliver.

As the result of an amendment to the current Stabilization Act, beginning with the 1979/80 season, the AWB will also be able to impose dockages on receivals of wheat varieties that have not been recommended by each state's Department of Agriculture. This varietal control scheme enables the AWB to encourage production according to the salability of a particular variety and facilitates BHA handling and storage operations through reductions of costly segregation requirements. A dockage of $A1.00 per ton is applied to varieties with minor quality deficiencies and to Hard premium wheats which, when grown under low protein conditions, possess poor processing characteristics. A dockage of $A3.00 per ton is applied to varieties with substantial quality defects, including Hard varieties that can no longer be classified as Hard Premium and varieties with poor processing potential. Finally, a dockage of $A20.00 per ton is applied to unregistered wheats.

There are currently four classes of Australian wheat under standards established by the AWB: Australian Prime Hard, Australian Hard, Australian Standard White, and Australian Soft. Grown in northern New South Wales and Queensland, Australian Prime Hard is sold on a guaranteed minimum protein basis with levels set at 13, 14, and 15 percent protein. Australian Hard, which is grown in all states but Victoria, has protein levels generally of 11 to 13 percent. Australian Standard White wheat comprises the bulk of annual deliveries and has a protein level of 9 to 11.5 percent. Australian Soft is grown in Victoria, New South Wales, and Western Australia and is a low protein wheat suitable for cake and biscuit flour. Protein levels vary by state, as well as seasonally.

As of October 1979, the AWB estimated total permanent storage capacity at about 23 million tons, including 300,000 tons at flour mills.[18] However, since BHAs handle small amounts of other grains, not all of this storage is available for wheat.

Total storage capacity has increased over 10 percent since November 30, 1977, due mainly to a rapid increase in construction to house the record 1978 crop. On-farm storage capacity, including both permanent and temporary facilities, is estimated at about 7 million tons. Some of this temporary storage can be dismantled when emptied and then reconstructed as needed from season to season.

Silos, which have an average capacity of just under 20,000 tons, are generally located on rail sidings and serve as the first receival point for most farmer deliveries. Farmers are individually responsible for transportation costs between farm and silo; farms, however, are usually within 25 kilometers of a silo.

Subterminals are generally larger than silos and are also located on rail sidings. They serve as collectors of particular wheat varieties from local silos and provide storage for seasonal carryover. Neither South Australia nor Queensland has subterminal facilities, due to the proximity of most farms to port terminals and to an insufficient volume of grain movement, respectively.

Seaboard terminals are the main points of consolidation for wheat exports, as well as centers of supply for domestic mills and for stockfeed processors. Storage capacities range from 100,000 tons in Brisbane, Queensland, to nearly 3 million tons in Kwinana, Western Australia. As a percentage of total storage, seaboard storage is highest in South Australia, which with 7 ports has the greatest number. Seaboard storage is also high in Western Australia, which has a relatively small population and which enjoys a freight advantage to most foreign markets, and in Victoria, where farms are closer to terminals than in New South Wales or Queensland.

Table 9.–Australian Bulk Handling Authorities: Grain Storage Capacity by State and Type

(In 1,000 MT)

	Country	Seaboard	Total
New South Wales . . .	6,042	375	6,417
Western Australia . . .	5,460	2,157	7,617
Victoria	2,751	1,070	3,821
South Australia	2,104	1,471	3,575
Queensland	1,263	107	1,370
Tasmania	–	31	31
Total	17,620	5,211	22,831

Source: Australian Wheat Board.

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[17] *Wheat Stabilization*, p. 13.

[18] AWB, 'Wheat Australia", Vol. 12 No. 5 (October 1979) p. 3.

Terminals are generally operated on one shift, 5 days per week, with some overtime. Industrial disputes, particularly at export positions, have traditionally reduced exports by a significant margin.

In addition to industrial problems, management of grain handling and storage is complicated by annual fluctuations in crop receivals, brought on by climatic vagaries. Because only small quantities of grain are stored on-farm at any one time, BHAs must be able to provide storage for an entire crop. Since production may vary from 9-18 million tons, as it did between 1977 and 1978, fixed costs are high and planning is difficult.

Most wheat moved between country elevators and export position in Australia is hauled by rail. Rail movement is almost always intrastate, due to historical state policies of independent economic development that resulted in rail lines running from country points to urban coastal centers within a particular state. Most interstate consignments are between the mainland and Tasmania, although they may also occur to meet export shipping schedules. Since interstate rates tend to be higher than intrastate rates, it is often cheaper to haul wheat to a terminal in the state where it was grown than to a considerably closer terminal in a border state.

A comparison of average freight rate charges, which are deducted from farmers' first advance payments (currently known as the guaranteed minimum price), shows rates for the five seasons ending in 1977/78 to have been consistently highest in New South Wales and consistently lowest in South Australia.

Although differences in freight rates generally can be explained by average distances to port terminals, charges are also affected by pricing policies of individual BHAs and state railway systems. In New South Wales and Queensland, where distances to port are greater and where terminal storage is a relatively small percentage of total storage, wheat must be hauled year-round to meet export commitments. In states where terminal storage is relatively significant, orders can usually be filled from current stocks and port and rail movement tends to be more seasonal.

As a result of general farmer discontent with pooled handling and storage costs, in 1978 legislation was passed requiring costs to be pooled on a state, rather than nationwide, basis. Designed to promote efficiency and cost-consciousness, this move is likely to increase charges to farmers in NSW and Western Australia, where recent BHA construction projects have been extensive, and decrease charges to farmers in the remaining states.

For the BHAs that are statutory authorities, capital expenses are funded through either state government or commercial loans, which together form part of the state's loan allocation from the Australian Loan Council—comprised of the Minister for Primary Industry and the Director of each state's Department of Agriculture. In South Australia and Western Australia, where BHAs are cooperatives, expenses are funded by wheat delivery tolls, which are placed in a revolving fund, as well as by commercial loans.

Through legislative authority, all BHAs have been granted sole rights for in-state grain handling. In return, BHAs are required to provide adequate handling and storage facilities to any farmer (or farmers) who can provide at least 200,000 bushels (5,443 tons) of grain on a regular basis.

Table 10.—Average Rail Freight Deducted from Farmers' First Payments, 1973/74-1978/79

(In Australian dollars/MT)

	NSW	Western Australia	Victoria	South Australia	Queensland	Australia
1973/74 . . .	8.92	6.16	7.52	4.56	8.02	6.95
1974/75 . . .	10.03	7.30	8.12	5.68	8.02	8.10
1975/76 . . .	11.99	8.46	7.99	5.24	11.32	9.48
1976/77 . . .	12.92	7.73	9.16	5.50	11.03	10.36
1977/78 . . .	13.89	9.77	9.13	5.96	11.36	11.01
1978/79 . . .	14.23	10.80	10.45	6.77	12.66	11.64

Note: The above table shows average figures only. Individual rail freight is calculated from actual point of delivery to terminal port.

Source: Australian Wheat Board, and "The Price Structure of Wheat 1978-79", Bureau of Agricultural Economics, p. 32.

Australian domestic consumption of wheat has remained stable in recent years at about 2.5-3.0 million tons annually, although consumption might now increase as a result of the AWB's new pricing authority over stockfeed wheat. About one-fourth of annual consumption has been used for stockfeed, while the remainder has been milled for human consumption. Under the AWB's "Millers' Agreement," millers consent to buy all wheat exclusively from the AWB. The AWB retains title to the wheat until delivered as flour for domestic consumption or for export. Millers then pay the AWB the home consumption price, f.o.r. port terminal basis, within 2 weeks after delivery of flour. Much of the milling and flour export industry in Australia is conducted by grain trading houses.

EXPORTS

The AWB has statutory authority over exports of all Australian wheat and wheat products. Over the past 5 years, wheat exports have accounted for about three-fourths of domestic production, with this proportion somewhat larger in years of heavy outturn. Whereas exports of wheat generally have been increasing, exports of wheat products—flour, starch, gluten, and biscuits—have plunged from about 1 million tons wheat equivalent in the mid-1950's to less than 300,000 tons in the mid-1970's. Generally, this decrease has been due to a surge in the number of flour mills in importing countries and the associated increase in international competition for remaining markets.[19]

As the statutory sole seller of wheat for export, the AWB has classified its selling arrangements into three categories:[20]

- The single most important category consists of government-to-government sales. Sales may be made either directly to another government, such as Bangladesh, Egypt, India, or Pakistan—or to a government agency or board, as in China, Kuwait, the USSR, and Zambia. These sales are generally on an f.o.b. basis, with the buyer undertaking chartering arrangements; prices are usually set at time of sale. When, on occasion, sales are on a c.i.f. basis, the AWB becomes the charterer and arrangements are made through the AWB's London office. About 60 percent of annual exports are on a government-to-government basis, although when export supplies are tight, this percentage may be higher. The AWB expects government-to-government sales to become an increasingly important share of AWB exports.
- Where trade in importing countries is in commercial hands, the AWB may sell to grain merchants who then sell as principals to overseas buyers. Examples of these countries include Indonesia, Japan, Malaysia, and Saudi Arabia. Although wheat sold to grain merchants is generally the residual amount after Government-to-Government sales and foreign aid commitments, in some cases, such as Japan, there may be an understanding between the AWB and the importing country for supply of an agreed-upon amount.
- The Australian Commonwealth buys wheat directly from the AWB for fulfillment of its food aid commitments under the Food Aid Convention of the International Wheat Agreement. Beginning with the 1980/81 international season (July/June), Australia has agreed to contribute 400,000 tons of food aid annually.

While most of the AWB's export sales are arranged from its Melbourne headquarters, the AWB also maintains offices in Tokyo and London. The Tokyo office promotes Australian wheat sales in Japan, Taiwan, the Philippines, Hong Kong, and South Korea. The London office, known as the Australian Wheat Committee, services markets in Western and Eastern Europe, as well as the Middle East. All AWB sales on a c.i.f. basis are chartered from this latter office on London's Baltic Exchange.

When AWB sales are on credit terms, as they frequently are to China, Egypt, and Pakistan, they are covered by the Export Finance Insurance Corporation (EFIC) which, like the AWB, is a statutory authority. Rather than apply coverage to individual contracts, the AWB negotiates package deals with EFIC for unilateral coverage against government defaults and sharp changes in currency rates. The average annual cost of this insurance for the seven seasons ending with the 1975/76 pool was $A1.5 million.[21]

The AWB usually sells to local grain trading houses on an f.o.b. cash basis at the AWB's asking price, less a discount to traders of 5 percent. The AWB's asking price is based on world levels and is issued daily for the major classes of wheat. Since the mid-1970's the AWB has offered traders deferred pricing arrangements, which delay final pricing of contracts from the date of sale until the date of lading.

Since December 1979, the AWB has also offered basis trading for sales to Japan and Southeast Asia. Under basis trading, the AWB's daily asking price is accepted and both buyer and seller then hedge on a futures market. Since basis trading is limited to only a few markets, the AWB is expected to hedge less than 3 million tons of wheat annually.

In some cases the AWB has granted traders exclusive rights in certain markets. Traditionally, these rights have been offered as a reward for a

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[19] *Wheat Stabilization*, p. 7.

[20] *Wheat Stabilization*, p. 48.

[21] *Wheat Stabilization*, p. 8.

Table 11.–Australian Wheat Exports by Principal Destination (Dec/Nov), 1974/75-1978/79

(In 1,000 metric tons)

	1974/75	1975/76	1976/77	1977/78	1978/79
South America	97	72	–	79	–
Bolivia	–	–	–	–	–
Chile	–	–	–	–	–
Peru	97	72	–	79	–
European Community	–	239	12	–	–
Bel-Lux	–	–	–	–	–
Italy	–	136	12	–	–
United Kingdom	–	103	–	–	–
Other Western Europe	–	–	–	–	–
Malta	–	–	–	–	–
Norway	–	–	–	–	–
Eastern Europe	52	22	–	–	102
German Dem. Rep.	26	–	–	–	–
Poland	–	–	–	–	102
Romania	–	22	–	–	–
Yugoslavia	26	–	–	–	–
USSR	1,123	1,289	944	447	941
Middle East	1,167	903	1,261	971	2,085
Bahrain	21	24	24	33	35
Iran	419	56	–	–	178
Iraq	282	313	627	309	947
Israel	–	–	–	–	–
Jordan	–	–	–	–	–
Kuwait	118	130	125	124	211
Lebanon	136	–	–	–	21
Muscat & Oman	–	–	40	37	53
Qatar	8	26	17	24	37
Saudi Arabia	60	79	100	80	219
Syria	–	–	–	–	–
U.A. Emirates	9	17	29	99	74
Yemen (Aden)	–	26	72	50	36
Yemen (Sana)	114	232	227	215	274
Asia	4,653	4,280	5,839	5,196	6,609
Afghanistan	–	–	–	5	10
Bangladesh	176	69	169	50	427
Burma	–	10	–	–	5
China	1,401	946	2,922	2,552	2,675
Hong Kong	19	5	19	–	–
India	473	929	288	–	40
Indonesia	454	466	487	588	638
Japan	1,150	1,011	1,068	1,063	1,214
Korea (North)	–	–	–	–	188
Korea (South)	–	–	21	–	–
Malaysia	292	329	377	367	398
Pakistan	359	127	38	192	491
Philippines	8	–	–	–	–
Singapore	162	154	203	180	278
Sri Lanka	65	128	92	105	42
Taiwan	75	79	57	54	–
Thailand	9	27	36	40	66
Vietnam	10	–	62	–	137
Africa	1,006	1,081	1,394	1,141	1,687
Angola	–	–	–	–	–
Egypt	881	950	1,244	1,045	1,511
Ethiopia	–	26	57	–	61
Ghana	–	–	–	6	6
Kenya	–	–	7	5	26

continued

Table 11.–Australian Wheat Exports by Principal Destination (Dec/Nov), 1974/75-1978/79–Continued

(In 1,000 metric tons)

	1974/75	1975/76	1976/77	1977/78	1978/79
Africa–Continued					
Mozambique	2	19	4	–	–
Senegal	–	–	–	3	–
Somalia	4	–	–	–	–
Sudan	5	–	–	5	8
Tanzania	39	–	6	6	–
Zambia	75	86	76	71	75
Zimbabwe	–	–	–	–	–
Oceania	175	77	51	79	118
Fiji Islands	37	44	44	46	50
Pacific Islands	1	1	1	1	2
Papua New Guinea	–	–	6	21	18
New Zealand	137	32	–	11	48
Tonga Islands	–	–	–	–	–
Total	8,273	7,963	9,501	7,913	11,542

Source: Australian Wheat Board.

trader's efforts in developing markets for Australian wheat. Once the market has been fully established, trading rights are rescinded.

Flour exports by the AWB are arranged under any of three methods:

- The AWB may negotiate a sale, usually with another government or government agency.
- A miller may negotiate a sale with an overseas buyer, who may be either a trader or an end-user.
- The Flour Millers Council of Australia may transact a sale with overseas buyers.[22]

If either the AWB or Flour Millers' Council negotiates the sale, the order is allocated to mills on a production capacity basis. Millers then buy wheat at export parity. When wheat products are exported, millers pay the home consumption price, less any difference between it and the export price at the date of the sale. When the export price exceeds the home consumption price, the exporter pays the difference to the AWB. Millers pay the home consumption price for all wheat sold as flour on the domestic market.

MARKET DEVELOPMENT AND EXPANSION

Although over the past five seasons (December/November) total Australian wheat exports have fluctuated from a low of 7.9 million tons in 1977/78 to a record 11.5 million tons in 1978/79, principal destinations have remained essentially unchanged (see p. 24). In all but one year China was Australia's single largest market, followed by Japan, Egypt, and the USSR. Together, these four markets generally account for about 60 percent of total Australian wheat exports. Of these markets, Egypt has been the fastest growing, nearly doubling between 1974/75 and 1978/79. While Japanese imports have remained steady at about 1.1 million tons annually, demand from China and the USSR tends to fluctuate from year to year, depending on those countries' annual outturn and other factors. Australia's chief competitors are Canada and the United States in China and Japan; the United States in Egypt; and the United States, Canada, and Argentina in the USSR.

In recent seasons, Southeast Asia and the Middle East each have received about 15 percent of Australia's annual wheat exports. Among Southeast Asian markets, Indonesia, Malaysia, and Singapore have been consistently prominent. With the exception of the Philippines, which has long been a U.S. market, Australia is easily the region's single largest supplier. Other important Asian markets for Australia include Pakistan and Bangladesh, although here, too, the United States has provided a large part of the supply. The significant South Korean and Taiwanese markets are also traditionally U.S.-supplied.

In recent years, among Middle Eastern markets, Iraq has been Australia's most prominent customer, followed by the People's Democratic Republic of Yemen, Kuwait, and Saudi Arabia. As a percentage of total wheat exports, shipments to the Middle East have increased from 14 percent in 1974/75 to 18 percent in 1978/79, making the Middle East Australia's fastest growing regional market. In 1979/80, the Middle East is expected to account for nearly 40 percent of total Australian wheat exports. Pakistan, Israel, and until most recently, Iran have been predominantly U.S. markets. Iraq's purchases tend to be equally divided between U.S. and Australian origins, while Lebanon and, in some years, Syria are mainly supplied by Canada. Australia is the traditional supplier to Bahrain, Kuwait, Muscat and Oman, Qatar, Saudi Arabia, the United Arab Emirates, and both Yemens. Since late 1979, Australia has also become Iran's chief supplier, with estimated sales during 1979/80 of about 1 million tons. The Australian share of the total Middle Eastern market has increased from about 20 percent in 1974/75 to about 25 percent in 1978/79.

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[22] *The Australian Wheat Industry*, p. 10.

Although the central and south Pacific islands of Oceania are virtually a captive market, total annual wheat imports by this group generally account for less than 100,000 tons. Many of the Pacific islands buy wheat flour from Australia rather than wheat.

Table 12.–Australia: Exports of Wheat, Flour and Wheat Products (Dec/Nov) 1948/49-1978/79

(1,000 metric tons)

Season	Wheat	Flour and wheat products[1]	Total
1948/49	2,261	1,073	3,334
1949/50	2,229	941	3,170
1950/51	2,319	1,181	3,500
1951/52	1,257	975	2,232
1952/53	1,620	1,145	2,765
1953/54	1,103	753	1,856
1954/55	1,719	926	2,645
1955/56	2,596	951	3,547
1956/57	1,823	880	2,703
1957/58	936	459	1,395
1958/59	1,931	687	2,618
1959/60	2,657	712	3,369
1960/61	5,498	801	6,299
1961/62	4,159	684	4,843
1962/63	5,544	678	6,222
1963/64	6,029	865	6,894
1964/65	6,633	635	7,268
1965/66	4,303	452	4,755
1966/67	8,000	526	8,526
1967/68	5,116	526	5,642
1968/69	6,144	441	6,585
1969/70	7,680	505	8,185
1970/71	8,595	454	9,049
1971/72	7,426	334	7,760
1972/73	3,855	282	4,137
1973/74	7,124	294	7,418
1974/75	8,273	296	8,569
1975/76	7,963	271	8,234
1976/77	9,501	261	9,762
1977/78	7,913	180	8,093
1978/79	11,542	94	11,636

[1] Wheat equivalent.

Source: Australian Wheat Board.

A significant development in market expansion has been the AWB's increased concentration on active promotion of Australian wheat at the technical level. Since 1978 the AWB, together with the Australian Bread Research Institute, has offered six technical seminars annually to millers and bakers in Southeast Asia. Now, with the recent expansion of these seminars to the Middle East, the AWB is expected to appoint a full-time export promotion co-ordinator to administer this market expansion program.

EXPORT POTENTIAL

Market prospects for Australia are bright. Australia's share of the world wheat trade is expected to increase to a record 18 percent in the 1979/80 (July/June) season, with exports at a record 14.9 million tons. This compares with a 10-season average of about 12 percent, with average exports of about 8 million tons. Increasingly large freight rate differentials–currently nearly $15 per ton less from Western Australia to Southeast Asian ports via-a-vis the United States–in addition to favorable prospects for some increase in domestic production and an aggressive marketing campaign, are likely to guarantee Australia's position as a major world wheat exporter for the foreseeable future.

Concurrent with efforts to increase production, grain-handling facilities are being expanded or updated in most states. A new terminal is being planned for Botany Bay in Sydney, while in Brisbane a new terminal facing deep water on Moreton Bay has been proposed. These two projects, which are still under study, are likely to be built in the mid-1980's.

In New South Wales, which accounts for about 40 percent of the total wheat crop but only one-fourth of total Australian storage capacity, the BHA is spending approximately $A12 million per annum on construction of new country storages and subterminals. The first stage of construction of a large subterminal at Parkes, in central New South Wales, is expected to be completed in time for the 1980/81 harvest. Country storage facilities are also being built at seven additional sites, mainly in the northern part of the State, where expansion potential is greatest.

In Western Australia, as in New South Wales, expansion of existing country storage and erection of new facilities are a major part of the planned construction program. Terminal facilities at Albany were considerably improved during 1979, with the shiploading rate quadrupled from 400 to 1,600 tons per hour and storage capacity increased to 282,300 tons. Total cost of these improvements, including new weighing equipment, was about $A8 million.

Although relatively little construction of bulk handling facilities has occurred in Victoria in recent

Table 13.—Australia: Exports of wheat by class and grade, 1968/69-1977/78

(In 1,000 metric tons)

Class/grade	New South Wales			Victoria	South Australia	Western Australia	Queensland	Australia
	Northern	South/West	Total					
Australian Prime Hard								
1968/69	666	60	726	–	–	–	650	1,377
1969/70	66	98	164	–	–	–	73	237
1970/71	121	37	158	–	–	–	–	158
1971/72	234	47	281	–	–	–	398	679
1972/73	140	3	143	–	–	–	41	184
1973/74	202	13	215	–	–	–	150	365
1974/75	544	126	670	–	–	–	132	802
1975/76	223	98	321	–	–	–	359	680
1976/77	846	80	926	–	–	–	7	933
1977/78	801	111	912	–	–	–	256	1,168
Australian Hard (1)								
1968/69	–	–	–	–	168	–	–	168
1969/70	119	62	181	–	229	–	48	458
1970/71	62	51	113	–	98	–	–	211
1971/72	67	41	108	–	10	–	–	118
1972/73	–	158	158	–	120	63	–	341
1973/74	198	246	444	–	69	46	36	595
1974/75	348	219	567	–	153	27	84	831
1975/76	627	210	837	–	181	24	118	1,160
1976/77 , ...	350	367	717	–	245	4	208	1,174
1977/78	295	530	825	32	97	44	11	1,009
Australian Standard White (2)								
1968/69	1,192	524	1,716	684	672	1,342	–	4,414
1969/70	8	1,478	1,486	1,398	1,042	2,026	–	5,952
1970/71	–	1,740	1,740	1,824	1,154	2,876	–	7,594
1971/72	125	1,075	1,200	1,625	1,169	2,127	–	6,121
1972/73	20	183	203	867	542	1,620	–	3,232
1973/74	–	527	527	586	1,034	3,138	–	5,285
1974/75	5	974	977	1,374	659	3,140	6	6,156
1975/76	3	812	815	916	492	3,303	77	5,603
1976/77	450	1,345	1,795	1,371	317	2,940	102	6,525
1977/78	236	736	972	1,424	320	2,729	96	5,541
Australian General Purpose (3)								
1968/69	78	31	109	6	12	106	–	233
1969/70	606	241	847	36	16	41	89	1,029
1970/71	303	248	551	27	18	37	–	633
1971/72	81	139	220	50	45	194	–	509
1972/73	–	–	–	–	48	50	–	98
1973/74	58	295	353	216	218	82	10	879
1974/75	3	24	27	101	233	–	104	465
1975/76	–	95	95	269	74	56	25	519
1976/77	7	270	277	274	15	133	171	870
1977/78	–	46	46	15	5	124	2	192

[1] Australian Hard includes Australian Hard No. 2.

[2] Australian Standard White includes Australian Durum, Australian Soft and ASW (soft varieties).

[3] Australian General Purpose includes weather-damaged, lightweight, and Australian Feed wheat.

Source: Australian Wheat Board.

Table 14.–Australia: Wheat Supply and Disappearance, 1960/61-1979/80

Year	Area	Production	Exports[1]	Domestic Consumption	
				Feed	Total
	1,000 Hectares	*1,000 MT*	*1,000 MT*	*1,000 MT*	*1,000 MT*
1960/61	5,439	7,449	4,986	588	1,982
1961/62	5,958	6,727	6,253	474	1,959
1962/63	6,665	8,353	4,791	405	2,053
1963/64	6,667	8,924	7,762	419	2,018
1964/65	7,251	10,037	6,435	944	2,607
1965/66	7,088	7,067	5,650	721	2,591
1966/67	8,427	12,699	6,926	601	2,460
1967/68	9,082	7,547	7,044	762	2,672
1968/69	10,845	14,804	5,380	449	2,584
1969/70	9,486	10,546	7,374	740	2,540
1970/71	6,478	7,890	9,516	653	2,625
1971/72	7,139	8,607	8,670	822	2,899
1972/73	7,603	6,590	5,614	1,239	3,328
1973/74	8,948	11,987	5,432	1,226	3,539
1974/75	8,308	11,357	8,307	1,000	3,119
1975/76	8,555	11,982	7,921	323	2,307
1976/77	8,956	11,800	8,515	745	2,790
1977/78	9,955	9,370	11,081	470	2,337
1978/79	10,113	18,037	6,700	680	2,719
1979/80	11,770	16,300	14,900	620	2,720

[1] July - June.

Source: Australian Bureau of Statistics, Australian Wheat Board, and FAS data base.

years, an ongoing review of the needs of the handling system is expected to result in proposals for significant expansion of port terminals at Geelong and Portland. In particular, port facilities at Geelong could face increased demand should interstate freight rates be changed to allow for more profitable movement of wheat produced in the Riverina region of southern New South Wales to Geelong, rather than Sydney. In South Australia, port terminals at Port Pirie and Walleroc have recently been upgraded, and additional facilities for barley receivals have been built at country elevators. In Queensland, new country storage has been built in the rapidly expanding production areas of the southwest.

As a result of this construction and upgrading of bulk handling infrastructure, effective grain export capacity, currently estimated at about 18 million tons, could readily exceed 20 million tons by the mid-1980s. Export movement is also likely to be facilitated by expected improvements in Australia's rail transportation network.

Under the current Stabilization Act and new varietal control scheme, growers are more likely than ever to make planting decisions in response to perceived market demand and expected prices. Changes in world prices over a 3-year period, including the current year, will be directly reflected in growers' guaranteed minimum payments. Also, under a scenario of growing world demand, since domestic consumption is not expected to exceed 3.0-3.5 million tons, any increase in production may be considered exportable surplus.

In recent seasons wheat plantings have tended to respond to world demand, but because of inconsistent weather patterns affecting annual production, Australian wheat exports have been more closely related to actual exportable supplies than to perceived market demand. For example, between 1977/78 and 1978/79 (July/June), when production nearly doubled from 9.4 million to 18.0 million tons, the Australian market share also doubled, from 8.7 to 17.8 percent, while world demand actually declined by 2 percent. A comparison of the Australian share of world wheat trade over the past two decades, however, indicates that the Australian share has changed less than shares among other major exporters. Between 1960/61 and 1969/70, when world wheat trade averaged 52.4 million tons, Australian exports accounted for about 12.0 percent of the market, compared with an average of 12.7 percent during the following decade, when world wheat trade averaged 68.2 million tons. During the same period, market shares decreased from averages of 21.2 to 19.5 percent for Canada and from 5.6 to 4.1 percent for Argentina, but rose from 36.8 to 41.6 percent for the United States.

Table 15.–International Freight Rates for Wheat[1]: Annually 1971/72-1978/79, Specified Months 1978/79, 1979/80

(US$/long ton)

Year and month	To United Kingdom (Tilbury)[2]		To Rotterdam		To India (east coast)		To Japan	
	Australia-Eastern states	USA-gulf ports	Australia-Eastern states	USA-gulf ports	Australia-Eastern states	USA-gulf ports	Australia-Eastern states	USA-gulf ports
1971/72	7.98	3.30	7.81	3.02	10.46	10.66	7.04	6.52
1972/73	14.62	7.69	14.17	7.44	16.57	17.54	11.71	13.90
1973/74	25.03	16.52	24.44	16.08	31.24	47.21	26.69	30.79
1974/75	19.56	8.81	18.98	10.10	30.58	39.81	22.58	24.50
1975/76	13.97	6.78	13.43	6.25-5.35	20.62	25.26-18.95	14.62	15.64
1976/77	19.83-19.00	7.88-6.24	18.83-18.00	7.25-5.66-5.21	24.06-18.56	24.64-19.54	14.90	15.29
1977/78[3]	18.08-17.08	8.46-6.42	17.08-16.08	8.53-5.75-5.04	20.31-17.69	24.55-19.63	14.00	15.87
1978/79[3]	20.90-19.90	13.17-8.19	19.87-18.60	12.07-10.09-8.88	23.48-20.84	34.06-22.64	18.18	21.47
1978/79								
July[3]	18.00-17.00	9.75-6.06	17.00-16.00	9.56-6.46-5.16	20.00-17.75	29.85-19.75	14.25	19.00
December[3]	21.00-20.00	9.45-8.17	20.00-18.50	11.00-9.35-8.67	23.50-21.00	34.35-21.00	18.35	22.50
April[3]	23.00-22.00	13.25-11.93-11.00	22.00-20.50	13.00-11.37-10.75	25.50-23.00	34.35-21.00	19.00	24.50
June[3]	24.35-23.35	23.00-21.50	23.20-22.00	20.00-17.50-16.60	30.80-26.60	48.15-40.00	26.70	28.10
1979/80								
July[3]	25.50-24.50	22.00-20.50	24.25-23.25	18.75-16.50-15.85	33.25-29.25	48.95-39.50	28.06	35.93
Sept.[3]	28.00-27.00	17.94-16.38	26.75-25.75	16.17-15.25-14.50	36.25-32.25	47.35-38.00	29.56	35.06
Nov.[3]	30.75-29.50	19.00	29.50-28.50	18.50-18.25	40.50-36.50	51.35-38.00	33.50	35.00

[1] Estimated midmonth rates based on chartering practices for vessels to load: 6 weeks ahead up to June 1976; and 4 weeks since July 1976. Price ranges depend on type of vessel, e.g. dry cargo vessel, bulker and/or tanker.

[2] The price differential for Western Australian rates has been, since 1975/76, $2.00/ton less for India and $1.50/ton less for other destinations, except Japan where there is no differential.

[3] Preliminary.

Source: *Situation and Outlook 1980: Wheat;* Bureau of Agricultural Economics, Canberra.

In conclusion, although Australian area sown to wheat is likely to continue to increase over the long term in response to expected increases in world demand—perhaps reaching 13-15 million hectares by the mid-1980's—the principal factor affecting future levels of wheat exports is expected to remain production, rather than logistical, potential. The Australian Continent is chiefly an inhospitable desert and, as such, will continue to pose severe constraints on area expansion, as well as on reliable seasonal outturn.

AUSTRALIAN COARSE GRAIN PRODUCTION AND MARKETING

SUMMARY

Although coarse grain production and marketing in Australia is nearly everywhere secondary to the wheat industry, it is nevertheless an important and intriguing sector of the Australian economy. Coarse grains account for about one-fourth of both total grain production and total grain exports. Whereas about three-fourths of the domestic wheat crop is annually exported, only about one-half of the coarse grain crop is shipped abroad.

In Australia, the coarse grain industry is dominated by a single crop: barley. Overall, barley accounts for slightly over half of coarse grain production, but about two-thirds of coarse grain exports. Australian barley shipments comprise about one-eighth of the world barley trade.

Although in most years Australia has the distinction of being the world's largest exporter of oats (about 400,000 tons annually), most of the crop is consumed on-farm, especially in years of drought. Like barley, the sorghum crop is mostly exported, since domestic use is constricted by a generally stagnant, intensive livestock feeding sector. Australian sorghum exports, however, account for less than 10 percent of the world total. The small annual corn crop is almost entirely channeled into the domestic market. Since Australia does not export rye and produces less than 20,000 tons per year, this report does not cover rye production and marketing.

Table 16.—Australian Coarse Grains: Supply and Disappearance[1] 1960/61-1979/80

	Area	Production	Exports[2]	Domestic Consumption	
				Feed	Total
	1,000 hectares	*1,000 MT*	*1,000 MT*	*1,000 MT*	*1,000 MT*
1960/61	2,795	3,245	1,120	1,177	1,923
1961/62	2,450	2,382	1,102	1,012	1,640
1962/63	2,396	2,614	621	1,304	2,036
1963/64	2,423	2,608	719	1,250	2,031
1964/65	2,476	2,759	750	1,305	2,127
1965/66	2,710	2,371	483	1,016	1,680
1966/67	3,019	3,849	872	1,709	2,666
1967/68	2,693	2,022	367	1,068	1,773
1968/69	3,184	3,799	857	1,195	2,019
1969/70	3,351	3,685	905	1,447	2,397
1970/71	4,191	5,474	2,218	1,579	2,355
1971/72	4,492	5,782	3,204	2,670	3,585
1972/73	3,891	3,620	1,639	2,381	2,828
1973/74	3,662	4,671	1,737	1,675	2,105
1974/75	3,285	4,421	2,873	1,260	1,696
1975/76	3,868	5,575	3,216	1,246	1,740
1976/77	3,901	5,019	3,320	1,694	2,201
1977/78	4,318	4,217	1,943	1,979	2,493
1978/79	4,645	6,903	2,522	2,066	2,642
1979/80	4,478	6,265	3,470	2,162	3,112

[1] Includes barley, oats, sorghum, and corn.
[2] July-June.

Source: Australian Bureau of Statistics and FAS data base.

BARLEY

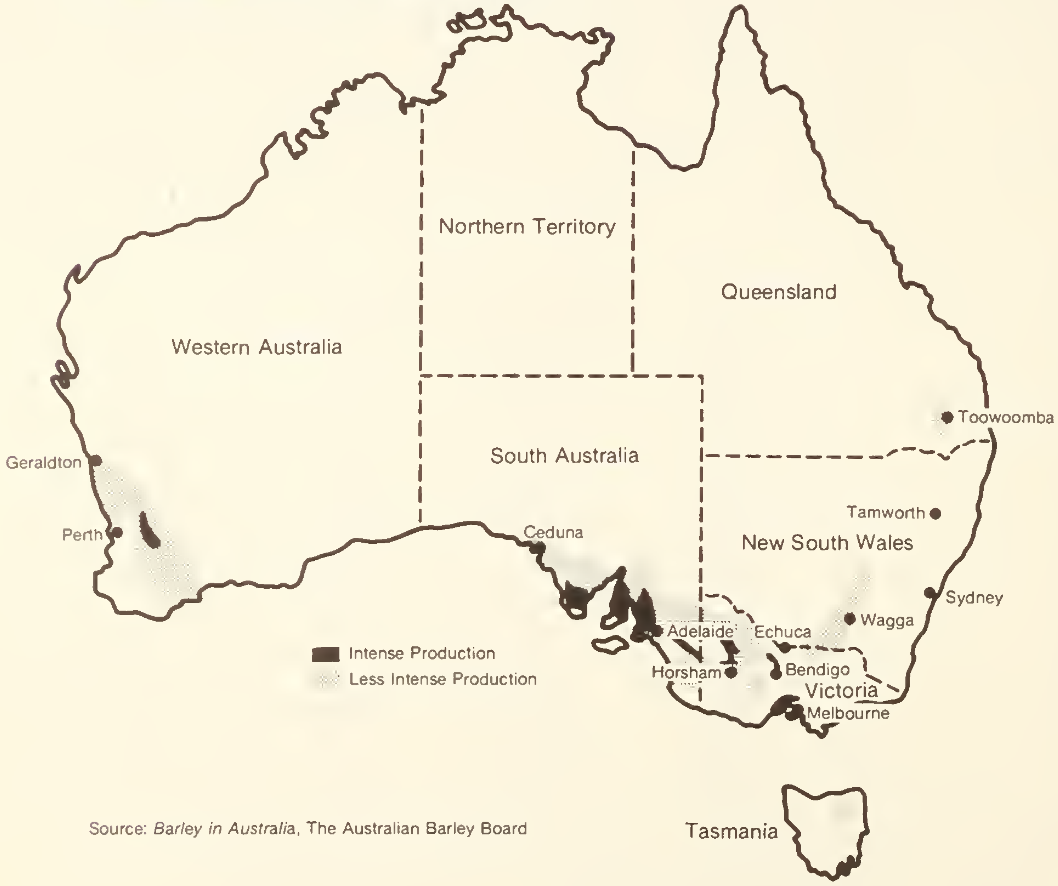
Production and Expansion Potential

Barley growing areas are concentrated mainly in South Australia, followed by Western Australia, New South Wales, Victoria, and Queensland. (See map below). Like wheat, barley is a winter-grown crop, sown in May and June and harvested during November and December. However, since barley is more drought tolerant and has a shorter growing period than wheat, barley is often sown instead of wheat in years when planting rains are inadequate or late. Barley is generally included in two types of rotation—either as a stubble-sown crop in a long rotation, or as a second crop after a legume pasture in a short rotation. In the former case, the clover-pasture is slower to establish and soil nitrogen buildup is more gradual. The first crop, usually wheat, is normally sown on fallow land; barley only rarely succeeds a fallow. In the short, legume-based rotation, a pasture/wheat/barley rotation is common.

Over the past 10 years, area sown to barley has increased by about 30 percent, with most of the increase taking place in South Australia and Victoria, in that order. During the same period area sown to wheat increased by about 105 percent. Most of this increase in barley area occurred between 1969/70 and 1971/72, when wheat delivery quotas were most effective, but since 1974/75 barley area has continued to expand, albeit less rapidly. This slower pace is likely to be maintained under the current Wheat Industry Stabilization Act, which guarantees wheat growers an advance payment of 95 percent of the average of the two immediate past pools plus the estimated return for the current pool.

Under the previous Stabilization Act, which concluded with the 1978/79 season, advance payments were generally less than 80 percent of the total return, or about the same percentage as first advance payments to barley growers. As a result, since barley pools take 15 to 18 months to finalize, compared with up to 4 to 5 years for wheat pools, some growers planted barley over wheat to take advantage of a

The Distribution of the Australian Barley Crop



Source: *Barley in Australia*, The Australian Barley Board

Table 17.–Australia: Area Sown to Barley, 1939/40-1978/79

(In hectares)

Season	Queensland	New South Wales	Victoria	South Australia	Western Australia	Tasmania	Australian Capital Territory	Australia
1939/40	5,345	9,823	82,654	203,784	33,477	3,125	–	338,208
1940/41	2,918	8,129	75,942	190,696	26,557	2,287	6	306,535
1941/42	3,006	8,329	82,671	193,548	27,676	2,153	–	317,383
1942/43	3,345	5,786	31,502	120,591	20,033	1,104	–	182,361
1943/44	5,225	8,124	33,694	105,807	24,848	1,391	144	179,233
1944/45	6,144	11,380	52,227	145,614	30,823	2,189	83	248,460
1945/46	8,518	11,693	54,283	178,806	26,866	2,730	32	282,928
1946/47	3,682	10,805	55,857	203,158	26,664	2,532	–	302,698
1947/48	6,965	9,501	66,446	227,602	25,551	3,298	1	339,364
1948/49	11,200	7,701	79,231	282,376	25,983	2,966	–	409,457
1949/50	10,147	5,186	95,558	280,760	27,505	1,759	–	420,915
1950/51	10,562	3,360	87,858	309,535	23,923	1,320	–	436,558
1951/52	11,395	4,509	75,364	336,549	22,895	1,716	9	452,437
1952/53	29,089	7,121	94,940	379,410	43,287	3,253	–	557,100
1953/54	22,694	12,853	151,580	453,963	84,699	3,819	–	729,608
1954/55	35,329	14,919	113,555	412,656	105,095	2,936	–	684,490
1955/56	58,894	21,930	125,096	421,612	136,368	2,558	2	766,460
1956/57	53,138	17,861	139,734	494,430	139,049	2,865	–	847,077
1957/58	69,868	27,865	142,349	490,393	124,405	3,393	–	858,273
1958/59	100,574	42,832	146,852	539,245	130,106	3,777	–	963,386
1959/60	105,209	47,862	112,360	522,030	170,495	5,017	–	962,973
1960/61	88,793	76,658	125,169	629,579	218,796	6,204	–	1,145,199
1961/62	71,585	81,244	91,255	514,328	198,532	7,579	–	964,523
1962/63	60,616	89,225	78,631	426,097	157,945	7,993	–	820,507
1963/64	71,171	85,616	76,947	454,514	120,945	5,581	–	814,774
1964/65	91,174	96,715	75,652	443,036	122,474	6,264	–	835,315
1965/66	136,862	95,546	77,814	444,411	167,170	8,056	–	929,859
1966/67	155,296	155,878	92,129	447,979	150,991	8,522	–	1,010,795
1967/68	138,595	148,717	123,437	468,081	168,267	9,733	–	1,056,830
1968/69	172,786	196,824	165,530	571,558	223,718	10,609	–	1,341,025
1969/70	168,684	219,314	196,934	559,947	364,301	12,016	–	1,521,196
1970/71	91,275	301,244	269,092	693,496	632,106	12,885	–	2,000,098
1971/72	158,635	373,441	295,818	783,668	911,338	12,576	–	2,535,476
1972/73	77,922	335,841	277,085	692,104	744,148	12,802	–	2,139,902
1973/74	138,853	385,580	221,804	627,281	509,835	11,121	–	1,894,474
1974/75	156,319	326,596	242,952	700,665	386,998	12,020	–	1,825,550
1975/76	236,229	486,033	344,306	832,046	418,985	11,475	–	2,329,074
1976/77	218,301	417,066	366,237	855,414	452,301	11,644	–	2,320,963
1977/78	200,235	485,576	418,407	1,073,353	613,623	11,444	–	2,802,638
1978/79[1]	236,000	468,000	369,000	1,100,000	594,000	12,000	–	2,780,000

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[1] Preliminary figures compiled from "Cereal Grains – Estimates of Intended Sowings, Australia" published by the Australian Bureau of Statistics.

Source: "Rural Land Use and Crop Production" and "Crop Statistics", Australian Bureau of Statistics, Canberra, Australia, and converted, where necessary, to metric units, by Australian Barley Board.

Table 18.–Australian Barley Production by States 1939/40-1978/79

(In 1,000 tons)

Year	Queensland	New South Wales	Victoria	South Australia	Western Australia	Tasmania	Australia
1939/40	6	11	85	226	22	4	354
1940/41	3	4	27	108	16	3	162
1941/43	3	7	109	266	22	2	408
1942/43	4	5	29	137	12	1	188
1943/44	6	9	24	115	16	2	172
1944/45	7	3	8	72	20	4	114
1945/46	12	11	40	172	15	3	252
1946/47	2	2	53	191	12	4	263
1947/48	10	12	81	348	17	5	473
1948/49	14	7	80	275	22	5	403
1949/50	13	6	111	289	22	3	443
1950/51	11	3	102	379	21	2	519
1951/52	14	3	82	382	16	3	497
1952/53	48	8	107	587	40	5	795
1953/54	26	15	180	646	62	7	936
1954/55	58	11	112	417	64	5	667
1955/56	96	25	156	558	106	5	945
1956/57	67	18	171	771	85	5	1,118
1957/58	67	16	124	398	81	6	691
1958/59	184	66	195	854	123	7	1,428
1959/60	151	59	127	269	158	9	773
1960/61	100	109	175	958	193	8	1,542
1961/62	80	94	106	483	165	14	941
1962/63	93	121	124	408	137	14	898
1963/64	118	121	91	552	92	9	984
1964/65	161	152	98	611	84	12	1,118
1965/66	207	86	73	420	147	16	949
1966/67	299	268	123	537	152	17	1,397
1967/68	203	110	61	281	159	20	834
1968/69	292	254	202	670	208	20	1,646
1969/70	172	280	258	691	274	25	1,699
1970/71	61	430	318	743	769	30	2,351
1971/72	249	346	395	1,047	1,000	28	3,065
1972/73	80	266	214	509	641	19	1,727
1973/74	221	448	285	793	626	24	2,397
1974/75	297	408	319	1,134	327	27	2,513
1975/76	419	698	445	1,094	505	18	3,179
1976/77	407	571	402	889	553	25	2,847
1977/78	217	444	349	592	764	17	2,383
1978/79	550	689	549	1,403	779	26	3,995

Source: Australian Barley Board: 1979 Annual Report, as compiled from data provided by the Australian Bureau of Statistics.

more immediate, if ultimately lesser, cash return. This was particularly true in Queensland, where early barley found ready export markets, and in South Australia and Victoria, where the Australian Barley Board has traditionally been able to arrange for rapid barley sales. A higher first advance payment for wheat will cut into this cash flow advantage to barley growers.

Another factor affecting the wheat/barley relationship has been the official promotion of a particular variety of barley, Clipper, whose yield has been compromised to maintain malting characteristics. This emphasis on Clipper-variety barley—rather than on the already developed feed barleys that can outyield wheat by a wide margin—may also lead some growers to plant wheat over barley, especially under the new Stabilization Act, which gives the Australian Wheat Board greater flexibility in pricing feed wheat.

It is essential to remember, however, that in Australia all barley growers are also wheat growers. As long as wheat area continues to expand, and as long as the rotation system remains an integral feature of Australian agriculture, barley area will also continue to increase, although less rapidly than wheat area.

Marketing

In all five barley-producing states, barley is marketed by statutory authority, i.e., each state's Parliament has passed legislation requiring growers to deliver all barley moving off-farm to an authorized receiver, where deliveries are pooled. However, under Section 92 of the Australian Constitution, which guarantees free trade between states, barley carried across state borders does not have to be delivered to a licensed receiver.

In all states but Western Australia, barley is marketed by statutory boards (the New South Wales Barley Board, the Queensland Barley Marketing Board and, in the joint case of South Australia and Victoria, by the Australian Barley Board). Statutory boards are agencies established by state legislation, empowered to take title of any specified commodity required to be delivered to it. The boards have sole authority for marketing that commodity, both domestically and abroad. All proceeds from board sales are pooled, as are all handling and storage costs. In the case of the Australian Barley Board (ABB), handling and storage costs are pooled on a statewide

Table 19.—Australia: Deliveries to Barley Marketing Boards, 1962/63 - 1978/79

(In 1,000 tons)

Season[1]	Australia Barley Board			Grain Pool of W.A.[2]	Old Barley Marketing Board[3]	N.S.W. Barley Marketing Board[3]	Total
	S.A.	Vic.	Total				
1962/63	316	74	390	107	32	–	528
1963/64	462	63	525	72	40	–	637
1964/65	513	64	578	61	75	–	714
1965/66	302	37	338	115	64	–	518
1966/67	452	75	500	125	163	–	788
1967/68	162	20	181	121	89	–	391
1968/69	485	134	619	158	144	–	921
1969/70	544	169	713	163	75	–	951
1970/71	605	222	828	651	25	–	1,504
1971/72	862	273	1,135	875	153	–	2,162
1972/73	349	93	442	426	17	–	886
1973/74	677	234	911	495	113	82	1,601
1974/75	1,072	278	1,351	248	234	199	2,032
1975/76	1,006	414	1,420	439	363	536	2,758
1976/77	812	361	1,173	488	357	321	2,339
1977/78	484	289	773	668	165	166	1,732
1978/79	[4] 1,340	[4] 468	[4] 1,808	675	491	316	[5] 3,290

[1] Season Dec. to Nov.
[2] W.A. Barley Marketing Board now part of The Grain Pool of W.A.
[3] Board established in 1972, with 1973/74 being the first season it operated a pool.
[4] To September 30, 1979.
[5] Preliminary.

Sources: Australian Barley Board; The Grain Pool of W.A.; Queensland Barley Marketing Board and Barley Marketing Board of N.S.W.

basis. Statutory boards are obliged to have a Government representative (usually from the state's Department of Agriculture) present at all official meetings. Statutory boards are also granted access to loans from the Rural Credits Department of Australia's Reserve Bank, up to the amount recommended by the Agricultural Loans Council—a body composed of each state's Premier or Treasurer, plus the Commonwealth Prime Minister. Loans are generally offered at a discount of one-half of 1 percent below the commercial rate and are guaranteed by the subject state.

In Western Australia, barley is marketed under statutory authority by a cooperative, the Grain Pool of Western Australia. Much like a statutory board, the Grain Pool takes title of the barley once it moves off-farm and is subsequently responsible for its handling and eventual disposal. As a cooperative, however, the Grain Pool is not required to invite a government representative to board meetings, nor does it have access to the discount offered by the Reserve Bank.

Domestic barley consumption is about 1.5 million tons annually, of which about 900,000 tons is for feed. Feed consumption is highly correlated with available supplies and prices of feed wheat. On the domestic market, the four barley marketing organizations sell barley within their respective state (or states, in the case of the Australian Barley Board). In years of short supply, however, one marketing organization may sell to another at a mutually arranged price. Interstate movement of barley may also occur under Section 92 of the Constitution, but this movement is outside the province of the statutory authorities. Growers in northern New South Wales, for example, may prefer to truck their barley for cash sale in Queensland, where barley prices are usually higher than in New South Wales. In extreme cases, a grower might truck barley across the border to Queensland and then carry it back to a private buyer in New South Wales. Growers who do not deliver their barley to the state marketing authority may not make use of the state bulk handling system.

In recent years about 75 percent, or 2 million tons, of the Australian barley crop has been exported annually. Although for some markets the barley marketing organizations compete against each other and against private traders, in many cases the relationship is more supplementary than competitive. Traders purchase their supplies from the boards, while the boards themselves have established a Barley Coordinating Committee to share price and market information.

Table 20.—Australian Barley: Supply and Disappearance, 1960/61-1979/80

	Area	Production	Exports[1]	Domestic Consumption	
				Feed	Total
	1,000 hectares	*1,000 MT*	*1,000 MT*	*1,000 MT*	*1,000 MT*
1960/61 . . .	1,145	1,542	769	285	599
1961/62 . . .	965	941	713	248	522
1962/63 . . .	821	898	234	238	502
1963/64 . . .	815	984	403	336	708
1964/65 . . .	835	1,118	369	359	755
1965/66 . . .	930	949	227	272	573
1966/67 . . .	1,011	1,397	425	307	647
1967/68 . . .	1,057	834	129	369	776
1968/69 . . .	1,341	1,646	451	478	1,007
1969/70 . . .	1,538	1,699	641	464	976
1970/71 . . .	2,000	2,351	1,123	702	1,131
1971/72 . . .	2,535	3,065	1,844	881	1,422
1972/73 . . .	2,140	1,727	804	1,011	1,183
1973/74 . . .	1,894	2,397	849	1,065	1,249
1974/75 . . .	1,826	2,513	1,749	688	884
1975/76 . . .	2,329	3,179	2,031	650	857
1976/77 . . .	2,321	2,847	2,094	690	933
1977/78 . . .	2,803	2,383	1,325	875	1,115
1978/79 . . .	2,780	3,995	1,687	960	1,240
1979/80 . . .	2,589	3,621	2,200	900	1,530

[1] July - June.

Sources: *Coarse Grains: Situation and Outlook, 1979,* Bureau of Agricultural Economics;
Overseas Trade, Bureau of Statistics; and FAS data base.

Table 21.–Australian Barley Board: Receivals and Disposals, 1968/69-1978/79

Season[1]	Pool number	Receivals	Australian sales		Export sales		Average price on all sales
			Total	Average price	Total	Average price	
		1,000 tons	1,000 tons		1,000 tons		
				$A/T		$A/T	$A/T
1968/69	30	619	191	50.70	426	39.24	42.78
1969/70	31	713	150	46.30	556	35.71	37.96
1970/71	32	828	211	57.76	615	48.06	50.54
1971/72	33	1,135	280	50.03	852	40.10	42.55
1972/73	34	442	190	57.94	252	59.83	59.02
1973/74	35	911	277	79.59	633	90.28	87.03
1974/75	36	1,351	330	88.81	1,019	108.54	103.72
1975/76	37	1,420	294	98.58	1,124	97.72	97.90
1976/77	38	1,173	250	113.78	921	106.03	107.68
1977/78	39	773	309	92.00	464	84.44	87.45
1978/79[2]	40	1,808	259	94.34	1,369	81.74	83.75

[1] Dec. - Nov.

[2] Sales to September 30, 1979.

Source: Australian Barley Board.

South Australia, Victoria. The Australian Barley Board (ABB), which currently markets barley on behalf of South Australian and Victorian growers only, is the single largest receiver and exporter of Australian barley. Like the Australian Wheat Board (AWB), the ABB was established in 1939 under wartime powers by the National Security Act. Until 1942, the ABB received and marketed the entire Australian barley crop, using facilities provided by the AWB. Since then, by virtue of a series of Barley Marketing Acts passed every 5 years by the South Australian and Victorian Parliaments, the ABB has marketed barley grown in those States only.

The ABB consists of five grower representatives elected every 3 years (three members from South Australia and two from Victoria), one representative each from the South Australian and Victorian Departments of Agriculture, and a representative from the local malting and brewing interests. Grower representatives are usually, although not necessarily, members of either the United Farmers and Stockholders Association of South Australia or the Victorian Farmers and Graziers Association. The chairman of the ABB is traditionally the Government representative from the South Australian Department of Agriculture.

Bulk handling and storage for the ABB is conducted under license by the South Australian Bulk Handling Cooperative Limited and the Victorian Grain Elevators Board. These bulk handling authorities (BHAs), which are responsible for handling and storing other grains as well, own and operate a range of facilities from country elevators to port terminals. As a cooperative, the South Australian BHA collects a toll from growers (about $A2.20 per ton for barley in 1978/79) as an interest-free loan for capital construction projects. The toll is added to a revolving fund that reimburses growers after a 12-period. The Victorian BHA is a statutory board and, as such, has access to loans from the Australian Reserve Bank.

Prior to planting, growers must register with the ABB the area they intend to sow to barley. This enables the BHAs to determine storage and handling requirements and the ABB to sketch the season's marketing plans. Throughout the growing season, ABB agents inspect the crops to ascertain yield and quality prospects. Barley crops nominated for seed are especially observed to ensure that they are free of weeds and other grains. All barley in South Australia and Victoria is grown from ABB-approved seeds.

About 20 percent, or about 300,000 tons in 1978/79, of all barley produced in South Australia and Victoria is of malting quality. Since ABB standards dictate only Grades 1 and 2 of Clipper-variety 2-row barley can be designated malting quality, growers who hope to have their grain classified as malting barley must submit a representative sample of their crop to the ABB prior to delivery for processing in ABB laboratories in Adelaide or Melbourne. Samples are analyzed for protein and moisture content, screenings, weed seeds, harvest damage, foreign grain, weather damage, and 100 percent grain weight. For nonmalting barley, official samples are taken upon receival and provisional classification is made at delivery point; final determination of grade is then made at the ABB laboratories. In South Australia barley is segregated into 1 of 6 grades and in Victoria, into 1 of 11 grades. The ABB maintains such detailed classification is financially acceptable for marketing purposes.

Barley sold for local consumption is primarily for malting purposes. Although the ABB has absolute authority to set prices, by general agreement among all barley marketing authorities—as established by the Barley Coordinating Committee—the price of malting barley has traditionally been set at the home consumption price for wheat ($A127.78 per ton in 1979/80). Prices for feed barley generally have been about 95 percent of feedwheat prices, which are set by the AWB. Since under new authority presented by the current Wheat Industry Stabilization Act, the AWB will be allowed to set feedwheat prices taking fluctuating world market prices into account, feedwheat prices could conceivably be set below feed barley prices.

In 1978/79, the ABB sold 56,000 tons of malting barley and a record 68,000 tons feed barley to the domestic market. While consumption of malting barley tends to be fairly stable, with increases generally following population growth rates, domestic consumption of feed barley can be quite variable, depending on prices, the availability of substitutes, and pasture conditions. Total domestic consumption of barley for feed is about 900,000 tons per year, but most of this is kept by growers for on-farm use and is never delivered to individual marketing authorities. Feedwheat consumption has recently been about 600,000 tons per year.

Just as barley production in South Australia and Victoria accounts for about half of the Australian total, so the ABB accounts for about half of total Australian barley exports. Of the 1.8 million tons received by the ABB in 1978/79 (Dec./Nov.), 1.4 million tons were exported. About 300,000 tons each were sold to Japan and Taiwan, while China with just over 100,000 tons was the third largest market.

Middle Eastern countries together took nearly 20 percent of the total and South American markets bought nearly 10 percent—including 55,000 tons sold to Chile. This marked the first Australian grain sale to that destination since 1974, when Australian stevedores instituted a boycott for political reasons. The remaining ABB exports were sold to European countries.

Total ABB barley receivals of 1.8 million tons in 1978/79 compared with AWB receivals for South Australia and Victoria that season of 5.4 million tons. In South Australia, the largest barley-producing State, barley deliveries of 1.3 million tons approached wheat deliveries of 2.0 million tons during 1978/79.

All ABB barley sales to Japan are handled by a large Japanese-owned firm in response to tenders by the Japanese Food Agency. According to an agreement that is annually renewed, the ABB supplies the Food Agency with about 300,000 tons of barley each year through this firm. Barley sales to Taiwan are also exclusively handled by this company. Remaining sales are handled by other private traders, although the ABB has agreed to use McCaul's of London as its agent for any sales west of the Suez.

Sales are occasionally made on a worldwide option basis, excluding Japan and Taiwan. Whereas sales to these latter two markets, as well as to China and the Middle East, are mainly for feed quality barley, sales to Europe and South America are primarily for malting quality barley.

Total payments to growers are made as soon as a season's pool is finalized. First advance payments, which are made on delivery of grain, have recently averaged over two-thirds of the total return. Higher world barley prices, in addition to increased competition from the new guaranteed minimum price for wheat, have resulted in a first advance payment by the ABB for the malting grade for 1979/80 crop of $A75 per ton, with a total return estimated at $A100 per ton. For the 1978/79 season, the first advance for malting grade barley was $A56 per ton. Since all barley sales are on a cash basis, pools are often finalized in less than 18 months.

Western Australia, Australia's second largest receiver and exporter of barley is the Grain Pool of Western Australia, which annually exports about one-half as much barley as the ABB. In 1978/79 barley receivals of 675,000 tons compared with AWB receivals of over 4 million tons of wheat. A cooperative company, the Grain Pool has a board of directors that consists of seven grower representatives in addition to one representative each from the malting and brewing industries and a chairman, with the latter three appointed by the State's Minister of Agriculture.

The Grain Pool operates as the statutory marketing agency for barley under State legislation. All barley moving off-farm must be delivered to the Grain Pool, at which point title is transferred. The State guarantees all loans extended to the Grain Pool to ensure first advance payments to growers for all grain deliveries.

Cooperative Bulk Handling, Limited (CBH) acts as the licensed receiver and handler of grain for the Grain Pool. Although a cooperative, CBH, like the Grain Pool, is subject to some Government supervision and regulation. For example, by virtue of its statutory status as sole handler of Western Australian grain, CBH is required to provide any farmer or group of farmers that can supply 200,000 bushels (5,443 tons) of grain on a regular basis with adequate receival and handling facilities—should there be no other facilities within 25 miles. Like South Australia's Bulk Handling Cooperative, CBH charges a toll (about $A4.00 per ton in 1978/79) for barley deliveries, which serves as an interest-free loan to CBH for capital construction costs. Tolls are deposited in a

Table 22.—Australian Barley[1]: First Advance Payments to Growers, 1972/73-1978/79
(In $A/T)

Board/Grade	1972/73	1973/74	1974/75	1975/76	1976/77	1977/78	1978/79
Australian Barley Board[2]							
South Australia							
Two-row barley:							
Malting Grade[3]	37.00	55.00	65.60	68.00	70.00	56.00	56.00
No. 3 Grade[4]	33.50	52.00	62.00	65.00	66.00	52.00	52.00
No. 4 Grade[5]	31.50	50.00	60.00	62.50	63.00	49.00	49.00
No. 5 Grade[6]	29.50	48.00	58.00	60.50	60.50	46.50	46.50
Six-row barley:							
No. 4 Grade	27.50	46.00	–	–	–	–	–
No. 5 Grade	25.50	44.00	–	–	–	–	–
Feed	–	–	55.00	52.00	52.50	38.50	38.50
Victoria							
Two-row barley:							
Malting Grade[3]	44.50	55.50	65.00	68.00	70.00	56.00	56.00
No. 3 Grade[4]	40.00	52.00	62.00	65.00	66.00	52.00	52.00
No. 4 Grade[5]	37.50	50.00	60.00	62.50	63.00	49.00	49.00
No. 5 Grade[6]	35.50	48.00	58.00	60.50	60.50	46.50	46.50
Six-row barley:							
No. 4 Grade	–	46.00	–	–	–	–	–
No. 5 Grade	–	44.00	–	–	–	–	–
Feed	–	–	55.00	52.50	52.50	38.50	38.50
Grain Pool of Western Australia[2]							
Two-row barley:							
Manufacturing grade . . .	36.00	52.85	69.20	72.82	75.00	60.00	55.00
Feed Grade	31.50	48.45	64.80	68.42	70.60	55.60	50.60
Six-row barley:							
Beecher	–	–	–	–	66.20	50.00	45.00
Queensland Barley Marketing Board[7]							
Malting barley	44.09	49.78	71.50	67.00	67.00	56.00	51.00
Milling[8]	44.09	49.78	71.50	67.00	67.00	56.00	51.00
Feed	44.09	49.78	71.50	67.00	67.00	56.00	51.00
Seed	44.09	49.78	71.50	67.00	67.00	56.00	51.00
Barley Marketing Board of N.S.W.[2]							
Malting barley	–	–	–	–	68.00	60.00	62.00
Two-row feed barley		[9] 55.10	66.00	63.00	63.00	55.00	56.00
Six-row feed barley					58.00	50.00	50.00

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[1] Bulk barley.
[2] Payments subject to the deduction of individual grower's freight.
[3] From 1975/76, No. 1 Grade.
[4] From 1975/76, No. 2 Grade.
[5] From 1975/76, No. 3 Grade.
[6] From 1975/76, No. 4 Grade.
[7] Less freight from individual growers' sidings. For the 1973 and 1974 seasons, main barley-growing areas exempted from individual freight deduction, while outer areas subject to differential rate of deduction to offset freight to centers of distribution to buyers.
[8] Old classification of milling barley now shown as MFG (Manufacturing Grade).
[9] First year in which the Board operated a pool.

Sources: Australian Barley Board; Queensland Barley Marketing Board; Western Australian Barley Marketing Board; Barley Marketing Board of N.S.W.; The Grain Pool of Western Australia.

Table 23.–Australian Barley[1]: Total Payments to Growers, 1973/74-1978/79

(In $A/Ton)

Board/Grade	1973/74	1974/75	1975/76	1976/77	1977/78	1978/79[2]
Australian Barley Board[3]						
South Australia						
Two-row:						
Malting Grade[4]	85.00	102.72	93.26	102.15	88.04	[5] 56.00
No. 3 Grade[6]	81.50	99.22	90.26	98.15	76.04	52.00
No. 4 Grade[7]	79.50	97.22	87.76	95.15	73.04	49.00
No. 5 Grade[8]	77.50	95.22	85.76	92.65	70.54	46.50
Six-row (cape):						
No. 4 Grade	75.50	–	–	–	–	–
No. 5 Grade	73.50	–	–	–	–	–
Feed	–	92.22	77.76	84.65	62.54	[5] 38.50
Victoria						
Two-row:						
Malting Grade[4]	79.00	90.96	92.73	107.04	85.35	[5] 56.00
No. 3 Grade[6]	75.50	87.46	89.73	103.04	81.35	[5] 52.00
No. 4 Grade[7]	73.50	85.46	87.23	100.04	78.35	[5] 49.00
No. 5 Grade[8]	71.50	83.46	85.23	97.54	75.85	[5] 46.50
Six-row (cape):						
No. 4 Grade	69.50	–	–	–	–	–
No. 5 Grade	–	–	–	–	–	–
Feed	–	80.46	77.23	89.54	67.85	[5] 38.50
Grain Pool of Western Australia[3]						
Two-row:						
Manufacturing	76.05	97.15	98.11	97.92	78.24	([9])
Feed	72.05	92.75	93.71	93.52	73.84	([9])
Six-row barley:						
Beecher	–	–	–	89.12	71.78	([9])
Queensland Barley Marketing Board[10]						
Two-row:						
Malting – No. 1	69.13	101.50	99.50	105.20	–	–
– No. 2	65.13	97.50	94.50	100.20	–	–
Malting	–	–	–	–	89.00	65.00
Milling[11]	62.63	95.00	92.00	95.20	83.00	61.00
Feed					76.00	56.00
Seed	[6] 72.87	[12] 104.98	[12] 101.78	[12] 107.76	[12] 92.50	[13] 70.50
Barley Marketing Board of N.S.W.[3]						
Malting barley	–	–	–	89.58	81.38	79.00
Two-row feed barley	[14] 76.20	96.40	78.00	84.58	76.38	73.00
Six-row feed barley				79.58	71.38	67.00

[1] Bulk barley.
[2] Estimated.
[3] Subject to deduction of individual grower's freight.
[4] From 1975/76, No. 1 Grade.
[5] To 30 September 1979.
[6] From 1975/76, No. 2 Grade.
[7] From 1975/76, No. 3 Grade.
[8] From 1975/76, No. 4 Grade.
[9] Not available.
[10] Less individual grower's freight. For the 1973/74 and 1974/75 seasons, main barley-growing areas exempted from individual freight deduction while outer areas subject to differential rate of deduction to offset freight to centers of distribution to buyers.
[11] 1977/78 pool classification changed to MFG (Manufacturing grade).
[12] Weighted average for selected and reserve seed.
[13] Seed 1.
[14] First year in which Board operated a pool.

Sources: Australian Barley Board; Queensland Barley Marketing Board; Western Australian Barley Marketing Board; Barley Marketing Board of N.S.W.; The Grain Pool of Western Australia.

Table 24.–Grain Pool of Western Australia: Barley, Average Realisations by Grade, 1973/74-1977/78
(In $A/T)

Grade	1973/74		1974/75		1975/76		1976/77		1977/78	
	Domestic	Export	Domestic	Export	Domestic	Export	Domestic	Export	Domestic	Export
Manufacturing[1] .	72.76	85.83	96.69	114.13	99.46	108.68	99.97	112.43	101.80	94.06
Feed[2]	56.98	78.34	72.65	101.10	89.36	103.77	106.04	107.71	81.39	88.87

[1] 2-row.
[2] 6-row and 2-row.

Source: The Grain Pool of Western Australia.

revolving fund. In 1978/79 freight costs were about $A3.31 per ton in South Australia and $A9.21 per ton in Victoria.

Unlike the ABB, the Grain Pool does not require predelivery barley samples for grade determination. In 1977/78–a bumper year for the Western Australian barley crop, but a drought year for South Australia and Victoria–barley receivals were about 670,000 tons. Of this amount, about 220,000 tons of primarily malting quality barley were sold on the domestic market and the rest, of primarily feed quality, was exported.

As with the ABB, the largest export markets are Japan and Taiwan. Also like the ABB, for sales to Japan, the Grain Pool deals exclusively with a large Japanese-owned trading company, which acts as an agent for the Japanese Food Agency. This company has established an extensive malting enterprise in Western Australia for the sole purpose of exporting malt to Japan. Remaining destinations for Western Australian barley include Middle Eastern and South American countries. Most Grain Pool barley sales, like those of the ABB, are forward contracted, and sold at prices current at the time of the sale. The need for contract hedging is thus reduced.

First advance payments for the 1978/79 barley crop were $A55 per ton for 2-row malting barley, $A50.60 for 2-row feed barley, and $A45 for 6-row feed barley–slightly higher than first advance payments by the ABB for comparable grades. First advance payments by the Grain Pool have averaged about three-fourths of the total pool payment. First advance payments would be an even greater percentage of total payments except that grower freight costs–which are deducted from the first advance–are higher in Western Australia than in either South Australia or Victoria, since farms are generally farther from port terminals. In 1978/79, freight costs were about $A10.50 per ton.

New South Wales. Before the establishment of the statutory Barley Marketing Board in 1972, the New South Wales barley crop was sold by growers on the open market.[23] As commercial buyers become increasingly centralized, growers became dissatisfied with the marketing system for barley and pressed for an orderly marketing arrangement of their own. Following a poll of growers in 1971 and an election for grower representatives that same year, the formation of the Barley Marketing Board made New South Wales–the third largest barley producer–the last mainland State to form a system for statutory marketing of barley.

Because a significant proportion of the New South Wales barley crop is grown near both the Victoria and Queensland borders, much of the barley crop has traditionally been trucked for sale across the border–a legal maneuver under Section 92 of the Australian Constitution, which guarantees free trade between States. Growers have engaged in this practice to gain advantage of immediate cash payment, even though this payment may be lower than the ultimate pool return.

Beginning with the 1979/80 season, to reduce or abolish this practice, the Barley Marketing Board will offer growers a cash option for deliveries in lieu of the first advance and subsequent payments. The cash price will be set at a level that will be attractive to some growers, but will still allow the Barley Marketing Board to dispose of the barley at a profit. Profits from these sales will then be paid into that season's pool, to be shared among growers opting for the traditional pool payment schedule. Deliveries to the Barley Marketing Board have averaged about 50 percent of annual New South Wales barley production, compared with over 90 percent of South Australian and Victorian production delivered to the ABB, and nearly 90 percent of Western Australian production to the Grain Pool.

In 1978/79, out of a total barley crop in New South Wales of nearly 690,000 tons, the Barley Marketing Board received less than 320,000 tons.

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[23] "Agricultural Product Marketing in New South Wales: Barley Industry," New South Wales Department of Agriculture, Sydney, 1975.

This compared with total New South Wales receivals during 1978/79 of more than 6 million tons of wheat and about 200,000 tons of sorghum.

The first advance to growers for the 1978/79 barley pool was $A62 per ton for malting barley, nearly 80 percent of the anticipated $A79-per-ton pool return. First advance payments of $A56 and $A50 per ton for 2- and 6-row feed barley, respectively, were also nearly 80 percent of the expected pool return. The first advance for the 1979/80 pool is likely to be about $A78 per ton for malting barley.

Queensland. The Queensland Barley Marketing Board has been in existence since curtailment of the Australian Barley Board's Commonwealth authority in 1942, making it the first board of its kind in Australia. The Board consists of four grower representatives who are traditionally, although not necessarily, members of the Queensland Grain Growers Association, and a representative from the Queensland Department of Agriculture (known, in Queensland, as the Department of Primary Industries). The chairman of the Board, a grower representative, is appointed by the Minister for Primary Industries.

As in South Australia and Victoria, Queensland growers are required to register the area they intend to sow to barley that season. This information is then used by the Barley Marketing Board to evaluate storage and handling requirements and to draw up marketing plans. All grain handling and storage is conducted by the statutory bulk-handling authority, the State Wheat Board, which was formed as a wheat-marketing agency prior to the creation of the AWB. Although it has kept its former name, the State Wheat Board since 1942 has had its responsibilities restricted to operations of grain movement.

Like those for Western Australian barley growers, first advance payments are higher than those offered by the ABB and average about three-fourths of the total return. In 1978/79, grain handling and storage costs were about $A9 per ton. Average freight costs were about $A11 per ton.

Average annual receivals by the Barley Marketing Board are about 300,000 tons, although this amount may fluctuate widely from year to year. Depending on prices and quality, about 100,000 tons is consumed locally, including 50,000 tons for malting, 40,000 tons for feed, and 10,000 for seed. The remainder is exported, generally to Asian destinations. Japan is the most regular customer, taking about 100,000 tons annually. Much of the exportable surplus is sold to private traders for optional destination, excluding Japan. Since Queensland barley is harvested earlier than elsewhere in Australia, the Barley Marketing Board has traditionally been able to dispose of its receivals expediently.

Exports

For the whole of Australia, Japan is easily the single largest market for barley exports. For the past five seasons, ending with 1978/79 (July/June), exports to Japan have averaged nearly 700,000 tons—or about 40 percent of total annual barley exports. Of this amount, about 10 percent is of malting-quality barley. About 50 percent of Japan's total barley imports are of Australian origin.

Taiwan has consistently been the second largest customer, buying an average of 230,000 tons annually over the past five seasons and accounting for about 13 percent of total annual exports. Less than 5 percent of barley exports to Taiwan are of malting quality. Other important destinations for Australian barley exports include West Germany, the United Kingdom, Iran, and Iraq.

As a percentage of total Australian barley exports, exports to Western Europe have generally increased—from 8 percent in 1974/75 to 19 percent in 1978/79. The same pattern emerges in examining Australian barley exports to the Middle East and South America. Exports to Middle Eastern countries have risen from 3 percent of the total in 1974/75 to 17 percent in 1978/79. Similarly, exports to South America accounted for less than 1 percent of the total in 1974/75, but 5 percent of the total in 1978/79.

Although still dominant, Asian markets have diminished in significance, slipping from 69 percent of the total share in 1974/75 to 59 percent in 1978/79. These trends, of course, are only general; abberations occur, especially in years when major importing areas experience surplus or drought.

Australian barley exports to South American destinations are virtually all of malting quality. The same is true of most West European destinations, although West Germany, Italy, and Greece import some barley for feed as well. With the exception of South Korea and a small proportion of the exports to Japan, nearly all barley exported to Asia is of feed quality.

Since Australia is the only major exporter of barley in the Southern Hemisphere, it has traditionally been able to export its crop with great facility. Exports from Canada, which is Australia's major competitor in the Asian market, generally move from April to October, when Canadian ports are open. Australian exports, however, generally move during an October/April season. Since Australian exports to South America and Western Europe are of mainly Clipper variety malting barley, competition with France and Canada in these markets is also minimal.

Table 25.–Australian Barley Exports, 1973/74-1978/79[1]

(1,000 metric tons)

Destination	1973/74	1974/75	1975/76	1976/77	1977/78	1978/79
USA	–	–	–	10	6	9
South America						
Brazil	–	–	–	–	6	9
Chile	6	6	11	14	45	19
Ecuador	–	–	–	–	–	25
Peru	–	–	–	–	–	3
Uruguay	–	–	–	–	13	5
Subtotal	6	6	11	14	64	61
Western Europe						
Bel-Lux	7	32	73	391	–	20
Greece.	–	32	–	–	–	24
Germany, West . . .	14	27	13	307	145	141
Italy	–	36	–	39	28	47
Netherlands	–	–	4	21	–	34
Portugal	–	–	–	–	–	38
United Kingdom . . .	38	15	–	99	16	24
Subtotal	59	142	90	857	189	328
Eastern Europe						
German Dem. Rep. .	–	–	–	39	–	–
Romania	–	–	–	23	–	29
Subtotal	–	–	–	62	–	29
USSR	–	66	738	98	–	–
Asia						
China	–	–	–	–	–	40
Japan	410	723	668	789	671	617
Singapore	–	–	–	–	–	14
North Korea	–	11	–	–	–	–
South Korea	27	284	1	1	17	3
Taiwan	177	177	225	229	212	304
Vietnam	3	7	–	–	–	–
Subtotal	617	1,202	894	1,019	900	978
Middle East						
Iran	24	55	15	26	37	107
Iraq	–	–	–	–	74	61
Kuwait	–	–	–	–	31	24
Lebanon	–	–	–	–	–	14
Saudi Arabia	–	–	3	3	14	37
Syria	–	–	–	–	–	26
Yemen, Rep.	–	–	–	–	–	5
UAE	–	1	78	2	5	13
Subtotal	24	56	96	31	161	287
Africa						
Morocco	–	31	–	–	–	–
South Africa	15	–	–	–	1	–
Tunisia	–	14	–	–	–	–
Subtotal	15	45	–	–	1	–
Other	110	232	202	71	4	–
Total	849	1,749	2,031	2,100	1,325	1,692

[1] July - June.

Source: *Overseas Trade,* Bureau of Statistics.

OATS

Production and Expansion Potential

Oats in Australia are a versatile crop, grown for pasture, fodder, and grain. Like wheat and barley, oats are a winter-growing crop, sown in April through May and harvested in October through November. The main producing areas of oats for grain are in Western Australia, southern New South Wales, and Victoria, in that order, and together account for about 90 percent of the total crop. South Australia produces most of the remaining share. Oats sown in Queensland and northern New South Wales are generally for livestock grazing. Area sown to oats is likely to expand along with overall area sown to grain crops, since oats take their place in the traditional ley-farming rotations. Most of the area sown to oats, however, is likely to continue to be for livestock grazing.

Table 26.–Grain Pool of Western Australia: Oats Receivals and Disposals, 1972/73-1977/78

Season	Receivals	Australian sales		Export sales		First advance payments[2]	Total payments to growers[2]
		Total	Average price[1]	Total	Average price[2]		
	Tons	*Tons*	*$A/T*	*Tons*	*$A/T*	*$A/T*	*$A/T*
1972/73.	8.1	0.1	53.06	7.9	45.43	27.55	31.25
1973/74.	105.1	1.0	62.88	103.4	77.34	44.00	68.58
1974/75.	104.0	0.1	71.47	103.1	83.97	58.35	71.10
1975/76.	188.8	60.3	88.89	187.9	89.96	64.00	78.69
1976/77.	118.4	0	0	117.7	90.47	60.00	73.65
1977/78.	108.3	0	0	107.9	83.19	50.00	64.95

[1] Bulk basis.

[2] Subject to deduction of individual grower's freight, tolls, and soil fertility research levy.

Source: The Grain Pool of Western Australia.

Table 27.–Australian Oats-for-Grain: Supply and Disappearance, 1960/61-1979/80

(In thousands)

Year	Area	Production	Exports[1]	Domestic Consumption	
				Feed	Total
	Hectares	*Tons*	*Tons*	*Tons*	*Tons*
1960/61	1,472	1,381	345	683	1,019
1961/62	1,253	1,000	346	480	716
1962/63	1,332	1,248	322	694	1,036
1963/64	1,373	1,238	303	620	926
1964/65	1,415	1,271	366	655	978
1965/66	1,525	1,102	251	551	823
1966/67	1,723	1,943	402	1,016	1,517
1967/68	1,368	719	183	393	586
1968/69	1,567	1,710	333	395	589
1969/70	1,374	1,247	210	637	973
1970/71	1,553	1,613	556	540	806
1971/72	1,241	1,275	329	1,166	1,418
1972/73	995	736	114	968	1,166
1973/74	1,182	1,107	197	420	616
1974/75	897	874	267	410	608
1975/76	988	1,141	359	425	649
1976/77	995	1,072	364	580	778
1977/78	1,076	990	218	600	810
1978/79	1,355	1,756	309	650	900
1979/80	1,292	1,492	625	750	1,000

[1] July/June.

Sources: *Coarse Grains: Situation and Outlook, 1979*, Bureau of Agricultural Economics, *Overseas Trade*, Bureau of Statistics, and FAS data base.

Marketing

Oats are marketed by statutory boards in New South Wales and South Australia and by cooperatives in Western Australia and Victoria. Although most oats sown for grain are kept on-farm for feed and seed, in favorable years when pastures are adequate, this proportion decreases and deliveries to boards are correspondingly greater.

Most deliveries to boards are sold for export. However, since deliveries are highly variable, depending on pasture conditions and the availability of feedgrain substitutes, the exportable surplus is difficult to predict. For the whole of Australia, the average annual deviation of oats exports is greater than 50 percent.

Nevertheless, Australia is usually the world's largest exporter of oats, accounting for nearly 20 percent of total world trade. Argentina was the world's chief supplier during the Australian drought years of 1972/73 and 1977/78. Australia, like Argentina, generally markets oats between late November and early April, when oat exports by the United States and Canada are reduced because of frozen ports.

Western Australia. In addition to its statutory responsibility for marketing barley, rapeseed, linseed, and lupins, the Grain Pool of Western Australia conducts a voluntary pool for oats. Western Australian oats, which are renowned for their superior quality, are sold to Japan (mainly for racehorses) and secondarily, to West Germany, Belgium, and the Netherlands. To promote oat deliveries to the Grain Pool, Japan s National Federation of Agricultural Cooperatives (ZEN-NOH) annually guarantees a minimum price which is subject to negotiation when each shipment is covered by deliveries. ZEN-NOH has also negotiated long-term supply agreements with both Western Australian and Victorian growers.

Victoria. In Victoria, most oats are marketed by the Victorian Oatgrowers' Pool and Marketing Company Ltd. As in Western Australia, because oat pools

Table 28.–Australian Oats Exports By Destination, 1973/74-1978/79[1]

(In 1,000 tons)

Destination	1973/74	1974/75	1975/76	9976/77	1977/78	1978/79
South America						
Ecuador	–	6	–	15	7	33
Peru	–	–	4	2	7	5
Western Europe						
Bel-Lux	–	–	16	–	–	–
Germany, West	8	60	20	87	30	38
Italy	16	–	–	–	4	–
Netherlands	–	–	11	6	12	–
United Kingdom	15	3	1	5	–	1
Eastern Europe						
German Dem. Rep.	–	–	–	–	–	32
Poland	–	28	–	–	–	–
USSR	–	–	157	80	–	–
Asia						
Hong Kong	1	–	1	–	1	2
Japan	147	158	143	155	131	167
Malaysia	1	4	4	4	6	5
Philippines	–	–	1	1	2	2
Singapore	1	2	1	–	1	–
Taiwan	–	–	–	–	14	–
Africa						
Algeria	–	–	–	–	–	7
Libya	–	1	–	–	1	3
South Africa	–	–	–	–	–	9
Other	8	5	–	9	2	5
TOTAL	197	267	359	364	218	309

[1] July - June.

Source: Australian Bureau of Statistics, *Overseas Trade.*

are voluntary, any trader in Victoria can buy and market oats. Traders are also permitted use of the State's bulk handling authority.

New South Wales. The Oats Marketing Board of New South Wales, formed in 1972, consists of five members—three grower representatives and two officials from the New South Wales Department of Agriculture. All export sales are negotiated by the Victorian Oatgrowers' Pool, which acts as an agent for the Oats Marketing Board. For the first time ever, receivals of 54,000 tons in 1978/79 were sufficiently large to enable significant exports of oats. In 1977/78, a drought year, only 3,200 tons were received. Licensed merchants may purchase oats directly from growers and sell either for domestic consumption or export. Only top quality oats are accepted by the Oats Marketing Board.

South Australia. Beginning with the 1978/79 season, South Australian oats have been marketed under statutory authority by the Australian Barley Board (ABB). Although the ABB controls export sales and grain resold on the domestic market, under current legislation direct sales between growers and users are outside ABB supervision. Apparently, efforts are being made in Victoria to allow the ABB to market oats in Victoria as well. The ABB currently markets barley in both States.

Exports

About 25 percent of Australia's production of oats sown for grain is exported. As usual with Australian coarse grains, Japan is the single largest market, taking about 50 percent of Australia's annual oat exports. Conversely, nearly all of Japan's oat imports are of Australian origin. West Germany is generally the second largest market. All oat sales are arranged through private traders, although the Japanese market is handled exclusively by ZEN-NOH.

SORGHUM

Production and Expansion Potential

Sorghum production in Australia is primarily limited to eastern areas of summer rainfall (Nov.-April), with Queensland and northern New South Wales accounting for over 95 percent of the total crop. Most sorghum is produced under dryland conditions in the northeasternmost section of the wheat belt, where it takes its place in an established pattern of crop rotation. On especially fertile or irrigated areas—such as the Darling Downs of Queensland—a field may be double-cropped, with sorghum directly following a wheat or barley crop. More often,

Table 29.—Australia: Sorghum Supply and Disappearance, 1960/61-1979/80

(In thousands)

	Area	Production	Exports[1]	Domestic Consumption	
				Feed	Total
	Hectares	*Tons*	*Tons*	*Tons*	*Tons*
1960/61	103	163	6	106	124
1961/62	147	255	43	173	194
1962/63	158	279	55	249	271
1963/64	148	215	13	180	196
1964/65	140	195	14	176	193
1965/66	175	195	7	103	123
1966/67	203	319	43	277	297
1967/68	187	288	52	188	208
1968/69	210	294	73	223	243
1969/70	359	547	53	243	268
1970/71	552	1,298	517	216	222
1971/72	638	1,228	990	448	500
1972/73	697	1,018	712	293	299
1973/74	540	1,061	748	110	115
1974/75	511	901	856	83	89
1975/76	504	1,124	815	110	116
1976/77	532	956	828	367	372
1977/78	394	714	385	450	456
1978/79	463	1,021	516	400	406
1979/80	542	1,008	630	440	450

[1] July - June.

Sources: *Coarse Grains: Situation and Outlook, 1979* Bureau of Agricultural Economics and *Overseas Trade*, Bureau of Statistics.

a fallow or a period under pasture occurs between winter and summer cropping. Sorghum is planted in October through January and harvested in April through June.

Although Australian sorghum exports only account for about 5 percent of world sorghum trade—with more than half of all sorghum production exported—the domestic sorghum industry is highly dependent on export markets. Domestic consumption of sorghum of about 400,000 tons is almost entirely for feed. Since domestic feeding operations are unlikely to expand more than marginally in the near future, however, due to a lack of demand for lot-fed beef, any increases in sorghum production will be largely channeled into exports. This is particularly true for the Queensland crop, since most of the domestic livestock feeding operations occur near the population centers of New South Wales.

Following the imposition in 1969 of wheat delivery quotas, many growers in areas where sorghum was a known and proven crop turned to sorghum to improve their cash flow position. Between the 1968/69 and 1972/73 seasons, area sown to sorghum more than tripled, reaching a record 697,000 hectares in 1972/73. Between 1973/74 and 1977/78, as wheat quotas were lifted and as world coarse grain prices generally declined, sorghum plantings decreased, dropping to a low of 394,000 hectares in 1977/78. Most of this decrease took place in New South Wales, where coarse grain prices are traditionally lower than in Queensland and where climatic conditions are not as favorable for summer-rain production. In recent years, however, area has again been increasing, with estimated plantings for the 1979/80 season at nearly 550,000 hectares.

Sorghum area expansion potential is considerable, with estimates ranging from 2-3 million hectares. Most of the area suitable for expansion is in Queensland and is currently being used for livestock (mainly cattle) grazing. Although sorghum cropping and livestock grazing are usually complementary operations, due to economic alternatives it is unlikely that area sown to sorghum will exceed the 1972/73 record in the near future.

Marketing

Queensland. The Central Queensland Grain Sorghum Marketing Board is the statutory board responsible for sorghum marketing in the 16 shires of

Table 30.—Central Queensland and New South Wales Grain Sorghum Marketing Boards: Receivals, Disposals, and Payments to Growers, 1971-79

Harvest Year	Receivals	Disposals		Payments[1]	
		Australian sales	Export sales	First advance	Total
	1,000 tons	*1,000 tons*	*1,000 tons*	*$A/T*	*$A/T*
	Central Queensland Grain Sorghum Marketing Board				
1971	244.98	4.90	240.08	32.48	43.19
1972	247.78	13.63	234.15	32.13	40.38
1973	105.84	12.00	93.84	35.25	41.19
1974	84.00	6.00	78.00	52.00	71.42
1975	109.00	6.00	103.00	65.00	84.17
1976	237.22	6.00	231.00	59.50	80.07
1977	210.70	4.70	206.00	62.00	76.68
1978	195.00	[2] 15.00	180.00	58.50	74.84
1979[3]	196.00	6.00	190.00	69.60	84.20
	New South Wales Grain Sorghum Marketing Board				
1973	162.00	17.00	145.00	48.00	64.30
1974	339.21	–	339.21	55.00	70.57
1975	221.03	8.67	212.36	80.00	88.82
1976	225.00	12.00	212.00	70.00	83.00
1977	150.00	52.00	98.00	67.00	79.60
1978	56.00	56.00	–	75.00	84.45
1979	[3] 200.00	–	[3] 200.00	72.00	[3] 85.00

[1] Bulk grain. Central Queensland Board: Less individual grower's freight to Gladstone. New South Wales Board: Less individual grower's freight to seaboard.

[2] 8 kt exported in 1978; carry-over stocks of 7 kt were exported in 1979.

[3] Preliminary.

Sources: Central Queensland Grain Sorghum Marketing Board; Grain Sorghum Marketing Board for the State of New South Wales.

central Queensland, which produce about 25 percent of the total Queensland crop. Most of the area sown to sorghum in central Queensland is in these shires, where annual rainfall averages 560-670 mm. Although rainfall amounts and timing can be extremely variable, some production stability has been achieved through the introduction on a limited scale of irrigation. The protein content (about 12 percent) is normally about one-third higher than that produced in the rest of Australia.

The Board comprises four grower representatives and two representatives from the Queensland Department of Primary Industries. The Board has delegated the State Wheat Board—which is the statutory bulk handling authority for all of Queensland—as the licensed receiver and handler of central Queensland sorghum. Since wheat movement has priority over sorghum and since storage is limited, all sorghum must be cleared from country elevators by September, to make room for the wheat harvest. Most of the grain delivered to the Board moves into export. Sales to local users are arranged through growers and buyers upon Board approval.

The Queensland Graingrowers Association (QGGA) operates marketing pools in southern Queensland—traditionally the most important sorghum area in the country. Much of this area, which receives both winter and summer rainfall (about 650

Table 31.—Queensland Graingrowers' Assn. Grain Sorghum Export Committee; Sorghum Receivals, Disposals and Payments to Growers, 1971-79

Harvest year	Pool no.	Receivals	Sales		Payments[1]	
			Volume	Average price	First advance	Total
		kt	*kt*	*$A/T*	$A/T	*$A/T*
1971	1	91.45	91.45	50.21	25.10	45.93
	2	156.06	156.06	47.38	31.49	43.01
	3	116.26	116.26	49.52	29.03	43.85
1972	1	55.47	55.39	45.57	25.10	41.16
	2	159.60	159.36	44.11	30.51	39.83
	3	133.80	133.60	43.58	28.54	39.36
1973	1	76.64	76.42	58.67	32.00	54.37
	2	77.17	76.95	50.02	25.50	45.58
	3	33.61	33.51	48.26	25.50	43.78
	4	8.59	8.56	53.26	25.50	50.22
1974	1	61.10	60.88	80.08	45.00	73.35
	2	58.06	57.85	78.77	45.00	74.32
	3	41.31	41.16	78.83	45.00	74.23
	4	40.76	40.61	80.42	45.00	75.67
	5	41.24	41.09	79.18	45.00	74.43
	6	29.86	29.76	76.13	45.00	71.63
1975	1	112.25	111.90	84.52	45.00	76.46
	2	73.01	72.79	80.91	45.00	75.37
	3	114.61	114.27	80.92	45.00	74.57
1976	1	94.52	94.23	83.81	55.00	75.91
	2	89.97	89.69	85.06	55.00	77.16
	3	80.81	80.68	86.37	55.00	79.41
1977	1	86.48	86.28	88.39	60.00	79.83
	2	79.94	79.76	89.86	60.00	81.30
	3	28.87	28.80	82.48	60.00	73.92
1978	1	41.93	41.67	91.05	52.00	84.37
	2	22.30	22.16	90.50	52.00	82.87
	3	4.86	4.83	90.50	52.00	81.85
Best endeavour	1	4.93	4.90	79.64	52.00	78.37
	2	18.01	17.90	79.64	52.00	74.39
	3	7.23	7.18	82.00	45.00	74.39
1979[2]	1	59.88	(3)	(3)	52.00	75.00
	2	84.93	(3)	(3)	52.00	76.00
	3	55.80	(3)	(3)	52.00	78.00
	4	41.16	(3)	(3)	52.00	81.00
Best endeavour[2]		2.23	(3)	(3)	52.00	73.00

[1] Less individual freight.

[2] Preliminary.

[3] Not available.

Source: Queensland Graingrowers' Association.

to 750 mm annually), is known as the Darling Downs, where rich soils have traditionally invited intensive cropping.

One of the most effective farmer organizations in the country, QGGA has formed sorghum pools since 1970, when the area's first large exportable surplus occurred. With several QGGA members on the Australian Wheat Board and the Queensland Barley Marketing Board, and with QGGA's historic involvement with Queensland barley marketing operations, QGGA has been able to organize sorghum sales with the expertise and facility of long experience. All exports are arranged through private traders.

New South Wales. The Grain Sorghum Marketing Board of New South Wales was established as a statutory board in 1971. Although most sorghum in New South Wales is grown in the north, which receives both winter and summer rainfall, sorghum is also grown in central and southern regions, mainly in irrigated districts that are intensively cropped.

The New South Wales Board consists of seven members, of which five are grower representatives and two are representatives of the New South Wales Department of Agriculture. On the domestic market, the Board operates a Licensed Merchant System, whereby domestic users, such as stockfeed manufacturers, can purchase supplies directly from growers. Growers must first obtain a certificate exempting them from delivery to the Board. Licensed Merchants then pay the Board on a monthly basis for the sorghum they have received from growers, in addition to a Board commission. Growers may dispose of their grain either on the domestic market, through the Licensed Merchants system, or for export through the Board pool. Export sales are generally made in response to public tenders through private traders.

Depending on their location, growers deliver sorghum to either the Grain Elevators Board of New South Wales or the State Wheat Board of Queensland. This latter provision was arranged by the New South Wales Board to reduce freight charges to growers, since in the northern part of the State it is cheaper to truck grain across the border for export through the port of Brisbane than to haul grain by rail in New South Wales for export through Newcastle.

Exports

Japan is easily Australia's largest market for sorghum, taking about 90 percent of the annual exportable surplus. In recent years, Australia has supplied about 15 percent of Japan's total sorghum imports. Taiwan and, more recently, Iran have been important markets for the remaining share. The Oceania countries of Fiji, Papua New Guinea, and New Caledonia are also regular buyers.

Table 32.—Australian Sorghum Exports by Destination, 1973/74-1978/79[1]

(In 1,000 tons)

Destination	1973/74	1974/75	1975/76	1976/77	1977/78	1978/79
South America						
Peru	–	16	–	–	–	–
Western Europe						
United Kingdom . . .	5	–	1	–	–	–
Asia						
Hong Kong	3	–	–	–	–	–
Japan	704	749	716	790	384	390
Philippines	–	39	9	–	–	–
Taiwan	15	3	47	9	–	96
Middle East						
Iran	–	–	–	26	–	25
Saudi Arabia	–	–	42	–	–	–
Oceania						
Fiji	–	–	–	2	–	3
New Zealand	23	49	–	–	–	–
Papua New Guinea. .	2	–	–	1	–	2
Total	797	856	815	828	385	516

[1] July - June.

Source: *Overseas Trade,* Bureau of Statistics.

CORN

Production and Marketing

With an annual crop of about 130,000 tons, corn production in Australia is relatively insignificant. Production is almost entirely confined to the northern, Atherton region of Queensland and southeastern portions of that State and to the northern tablelands and coastal regions of New South Wales. Like sorghum, corn is a summer-growing crop, planted from late October through January and harvested in May through June. Except in coastal regions, most of the crop is grown under irrigation. Nearly all domestic production is consumed locally by pig, poultry, and dairy industries.

Table 33.–Australian Corn: Supply and Disappearance, 1960/61-1979/80

Year	Area	Production	Exports[1]	Imports[1]	Domestic Consumption	
					Feed	Total
	1,000 ha	*1,000 tons*	*1,000 tons*	*1,000 tons*	*1,000 tons*	*1,000 tons*
1960/61	75	159	–	–	103	159
1961/62	85	186	–	–	111	171
1962/63	85	189	10	–	123	189
1963/64	87	171	–	–	114	175
1964/65	86	175	1	–	115	177
1965/66	80	125	–	2	90	139
1966/67	82	190	2	1	109	173
1967/68	81	181	3	6	118	182
1968/69	66	149	–	1	99	154
1969/70	80	192	1	1	103	160
1970/71	86	212	22	–	121	167
1971/72	78	214	41	–	175	221
1972/73	59	139	9	1	109	154
1973/74	46	106	3	1	72	116
1974/75	51	133	1	1	73	107
1975/76	47	131	11	2	59	115
1976/77	53	144	34	2	57	118
1977/78	45	130	25	4	54	112
1978/79	50	131	10	3	56	116
1979/80	55	144	15	5	72	132

[1] July-June

Sources: *Coarse Grains: Situation and Outlook, 1979,* Bureau of Agricultural Economics and Foreign Agricultural Service, data base.

Table 34.–Atherton Tableland Maize Marketing Board: Receivals and Disposals, 1967/68-1978/79

Season[1]	Receivals	Australian sales		Export sales		Payments to growers[2]
		Total	Average price	Total	Average price	
	1,000 tons	*1,000 tons*	*$A/Ton*	*1,000 tons*	*$A/Ton*	*$A/Ton*
1967/68	13.23	13.16	56.30	1.46	48.42	36.64
1968/69	14.12	10.51	54.72	3.08	31.89	33.86
1969/70	16.56	14.84	60.23	–	–	47.64
1970/71	15.84	11.98	57.08	4.23	47.64	44.09
1971/72	12.94	13.49	59.05	0.14	37.40	48.82
1972/73	15.49	15.60	61.02	–	–	50.53
1973/74	15.68	16.58	71.22	–	–	59.65
1974/75	13.05	15.96	89.20	–	–	69.54
1975/76	21.16	16.36	85.98	4.30	72.57	70.19
1976/77	28.10	14.55	93.10	13.96	70.83	70.24
1977/78	21.82	14.58	104.97	6.85	77.29	72.32
1978/79	22.80	14.86	101.12	7.94	54.96	70.48

[1] 1 June to 31 May.
[2] Shelled at farm.

Source: Atherton Tableland Maize Marketing Board.

In Queensland, corn is marketed by the Atherton Tableland Maize Marketing Board in the northern part of the State and by the Queensland Grain Growers Association in the south. In New South Wales, corn is marketed through the New South Wales Yellow Maize Marketing Board. Most corn is trucked by growers directly to stockfeeders, under arrangement with local marketing authorities. Exports, which average about 15,000 tons annually, are sold by the marketing authorities to private traders, generally for export to Japan for stockfeed.

THE AUSTRALIAN RICE INDUSTRY

Production and Expansion Potential

Large-scale rice production in Australia is a relatively recent phenomenon, with area more than quadrupling in the past 15 years. Production is presently concentrated in the Murrumbidgee and Coleambally Irrigation Areas and the Murray Valley—all in New South Wales, although area in Western Australia is rapidly expanding. New South Wales area sown to rice to 105,700 hectares in 1978/79 compares with 3,300 hectares in the Lower Burdekin region of Queensland and 200 hectares in the Ord River Valley of Western Australia.

About 85 to 90 percent of all rice production is exported, mainly to Asian destinations. Australian rice exports currently account for about 3 or 4 percent of the world rice trade.

Rice growing in Australia is a sophisticated enterprise, with yields among the highest in the world. Most rice is grown on mixed irrigation farms, with average farm size varying from 200 to 400 hectares in the Murrumbidgee Valley (which includes both the Murrumbidgee and Coleambally Irrigation Areas) and from 200 to 800 hectares in the Murray Valley.[24] Area sown to rice, however, is controlled by the rice industry and is currently set at about 73 hectares per farm. Only one crop is grown each year, from late September to mid-April.

Table 35.—Australian Rice Area, Production, and Exports; by State and Type, 1974/75-1979/80

Item	Unit	1974/75	1975/76	1976/77	1977/78	1978/79[1]	1979/80[2]
Area							
New South Wales	1,000 ha	72.9	72.2	89.2	88.4	105.7	109.7
Long grain	1,000 ha	NA	NA	NA	NA	NA	NA
Short grain	1,000 ha	NA	NA	NA	NA	NA	NA
Queensland							
Long grain	1,000 ha	2.6	2.3	2.5	2.8	3.3	4.5
Total area[3]	1,000 ha	75.6	74.8	92.0	91.4	109.3	114.7
Production (paddy)	1,000 tons						
New South Wales							
Long grain	1,000 tons	114.9	173.8	176.2	217.4	221.8	246.4
Short grain	1,000 tons	259.7	234.4	342.8	259.6	452.7	420.0
Queensland							
Long grain	1,000 tons	12.0	8.0	9.3	12.9	15.4	19.6
Total production[3]	1,000 tons	386.6	417.0	529.8	491.0	691.7	689.0
Exports							
Quantity							
Milled equivalent. . . .	1,000 tons	172.5	215.2	254.4	273.2	305.0	417.0
Average export value							
F.O.B. milled equivalent	$A/Ton	249.10	243.80	224.62	243.87	275.00	280.00
Average return to grower							
New South Wales	$A/Ton	93.88	96.07	99.69	123.60	[2] 124.90	NA
Queensland	$A/Ton	113.54	128.30	121.50	[1] 148.00	164.44	NA

[1] Preliminary.
[2] Estimated.
[3] Includes Western Australia and Northern Territory where data are available.
NA, not available.

Sources: Queensland Rice Marketing Board; Rice Marketing Board, State of New South Wales; Rice Growers' Co-operative Mills Ltd; Western Australian Department of Agriculture; ABS.

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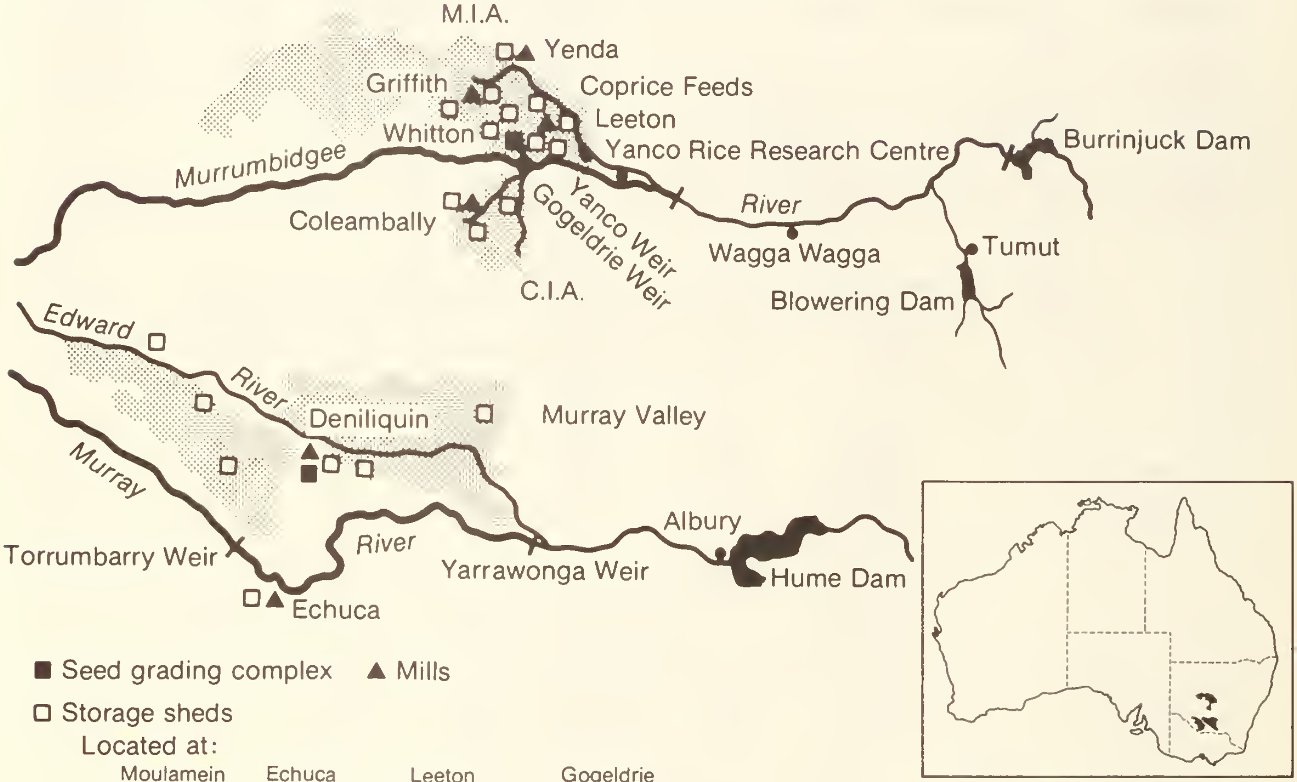
[24] "The World of Australian Rice," New South Wales Rice Industry.

The Distribution of the New South Wales Australian Rice Crop



Located at:

Moulamein
Burraboi
Caldwell
Wunnamurra
Blighty

Echuca
Deniliquin
Coleambally
Eulo
Gala Vale

Leeton
Griffith
Yenda
Murrami
Whitton

Gogeldrie
Widgelli
Willbriggie
Benerembah

Source: *The World of Australian Rice*, New South Wales Rice Industry

Because rice area has expanded rapidly in the last few years, long-term farming systems are still being established.[25] However, the most prevalent system currently is a 4-year rotation of rice, a winter cereal (wheat or barley), and pasture. Pastures are primarily used for fat-lamb grazing. Depending on the level of intensification, rice may also be grown for more than two seasons continuously.

Aerial sowing of pregerminated seed into flooded bays is probably the main sowing method in most rice-growing districts—particularly in the Murray Valley, where the season is short and crusting soils are a problem. Although the traditional method of sowing is with a combine or disc drill into a prepared seedbed, this method is currently practiced by only about 25 percent of Australia's rice farmers. Using this method, rice bays are first flooded and then quickly drained until rice seeds begin to germinate. Bays are again flooded about 20 to 40 days after sowing—when the rice is 5 to 10 centimeters high—and are kept flooded until harvest. Under a third method, rice is sown directly into rice stubble from a previous crop or into an unprepared legume pasture, which has been heavily grazed just prior to sowing.

Rice production potential for the whole of Australia is dependent on development of current water supplies, since all rice is grown under irrigation. Currently nearly all irrigation water in New South Wales is surface-stored, and this storage could increase by about one-third in the near future. Tapping subsurface water supplies would also increase available supplies by a large margin.

Through the present, price has been a relatively insignificant factor in determining either quantity retained or allocation of water among competing uses in Australia.[26] Price generally covers only annual servicing charges and excludes capital construction costs. In New South Wales water is distributed from surface storages through a government reticulation scheme (see map, p. 51). In determining water prices, only annual maintenance costs are considered and capital construction costs are excluded.[27]

Production potential in Queensland, particularly in the Lower Burdekin region, is also considerable. If plans for construction of the Burdekin Dam are carried through, some 80,000 hectares could immediately become available for rice production.

But perhaps the most significant expansion potential exists in the Ord River Valley of Western Australia, where sufficient land and water resources could lead to development of a major producing area, provided returns compared favorably with alternative crops such as sugar cane and sorghum. Until recently, however, the area has been beset with a number of technological and development problems, including transportation to and from major markets.

Marketing

Rice marketing in New South Wales is organized by three grower-controlled bodies: The New South Wales Rice Marketing Board, Ricegrowers' Cooperative Mills Limited, and the Ricegrowers' Association of Australia. The Rice Industry Coordination Committee, which is made up of five delegates from each of the three groups, sets industry policy, including production levels and varietal control. This Committee meets annually with the New South Wales Water Resources Commission, which is the statutory authority responsible for issuing permits to farmers allotting use of irrigation water for rice production. At that meeting, the decision on how much area each farmer may sow to rice is determined.

Formed in 1928, the New South Wales Rice Marketing Board was the first statutory marketing authority in that State. The Board is composed of five grower representatives, elected every 3 years, and two members appointed by the New South Wales Department of Agriculture. As a statutory authority, the Board is responsible for acquiring, handling, and storing all paddy rice produced, and sets all paddy rice standards. Through its Pure Seed Scheme, the Board in conjunction with the Department of Agriculture selects, grades, and issues all seed to growers. The Board also operates an Equity Scheme, which allows growers a financial interest in the Board's assets, redeemable on termination of rice growing. The Board purchases supplies such as fertilizers and chemicals in bulk—at a reduced cost—for growers, promotes rice consumption, and issues payments to growers according to pool returns. Once the Board has acquired the crop, it acts as the growers' agent and passes the rice on to the Ricegrowers' Cooperative Mills. When the rice is milled, proceeds are then returned to the Board and growers receive payments on a pooled basis.

Ricegrowers' Cooperative Mills Limited was established in 1951 as a grower effort to increase paddy prices. About 99 percent of all Australian ricegrowers are shareholders in the Cooperative, which oversees commercial operations of the Australian rice industry. The Cooperative is responsible for milling all rice produced in New South Wales and for marketing and distributing that product, both domestically and abroad. All rice exported by Australia is milled, and all exports are arranged by the Cooperative. Exports to Hong Kong, as well as several less developed regions, such as Papua New Guinea and the Pacific islands, are frequently in the form of retail packets.

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[25] For comments on the Australian rice industry, I am grateful to Bruce Caldwell, general secretary, Ricegrowers' Association of Australia.

[26] Ricegrowers' Association of Australia.

[27] "Irrigation and Water Use in Australia," Geoff Miller, *Rural Economy* (Vol 1,4), November 1979.

Table 36.—Australia: Rice Area, Supply, and Distribution, 1960/61-1979/80

	Area	Milled Production	Exports[1]	Domestic Consumption
	1,000 ha	*1,000 tons*	*1,000 tons*	*1,000 tons*
1960/61	19	82	62	35
1961/62	20	96	38	36
1962/63	22	97	58	37
1963/64	24	102	57	35
1964/65	25	109	65	36
1965/66	26	130	64	40
1966/67	30	153	99	45
1967/68	31	158	97	54
1968/69	34	183	124	60
1969/70	40	177	111	65
1970/71	38	214	165	72
1971/72	41	177	143	67
1972/73	45	221	158	80
1973/74	68	293	145	92
1974/75	76	277	185	37
1975/76	75	298	218	55
1976/77	92	379	260	56
1977/78	91	351	337	58
1978/79	109	494	400	59
1979/80	115	472	425	60

[1] January-December.

Sources: "The World of Australian Rice," New South Wales Rice Industry and USDA/FAS data base.

The Ricegrowers' Association of Australia was established in 1930 to promote grower interests in the Australian rice industry. The Association was originally formed in 1926 as the Murrumbidgee Irrigation Area Ricegrowers' Cooperative Society, which was instrumental in establishing the New South Wales Rice Marketing Board. The Association was similarly active in working toward the creation of Ricegrowers' Cooperative Mills Limited. About 80 percent of New South Wales ricegrowers are members of the Association, which is responsible for representing grower interests at both the farm and national levels. In the latter case, the Association makes use of its affiliation with the National Farmers' Federation, which represents all Australian farmers at the national level.

Whereas rice in New South Wales is grown primarily for export, rice produced in Queensland and Western Australia is entirely for local consumption. Domestic rice prices are generally considerably above world market prices. In recent years, rice area in Queensland has more than doubled—from 2,100 hectares in 1973/74 to about 4,500 hectares in 1979/80. This gain largely reflects smaller sugar area because of the reduction in farmers' sugar quotas under the recent International Sugar Agreement. Irrigation water in Queensland is allocated in much the same way as in New South Wales.

The Rice Marketing Board is responsible for marketing all rice produced in Queensland and has appointed the Lower Burdekin Rice Producers' Cooperative Association Limited (LBC) as its agent to receive, store, and mill all paddy rice delivered to it. LBC in turn has appointed an affiliate of a U.S. rice mill as its agent for marketing, under conditions approved by the Board. This U.S. firm used to export long grain rice to Australia, but once Australia itself began to produce long grain rice, the firm was appointed by LBC as its agent. This was done not only to gain the advantage of the firm's marketing expertise, but to avoid dependency on the New South Wales Ricegrowers' Cooperative.

Exports

Exports of Australian rice generally account for about 85 to 90 percent of domestic production, although domestic consumption of about 60,000 tons per year evidences relatively high per-capita consumption of about 8 to 10 pounds per year. With the exception of a 100,000-ton sale in late 1979 to the

Table 37.—Australian Rice Exports by Destination, 1974/75-1978/79[1]

(In 1,000 tons)

Country	1974/75	1975/76	1976/77	1977/78	1978/79
Western Europe					
Spain	–	–	–	21	–
United Kingdom . . .	14	7	6	2	1
Eastern Europe					
Germany	–	1	1	1	–
Poland.	–	1	–	–	–
USSR	–	29	29	14	24
Asia					
China	–	–	–	–	15
Hong Kong	20	37	46	56	35
Indonesia	20	62	38	69	15
Japan	–	–	–	–	89
Singapore	18	8	2	3	9
Taiwan	4	–	1	–	–
Middle East					
Bahrain	–	–	2	4	–
Saudi Arabia	–	–	–	–	4
Yemen PDR	–	–	–	2	37
Oceania					
Fiji	9	13	14	15	11
New Zealand	5	4	6	5	5
Pacific Islands	21	22	23	20	11
Papua New Guinea. .	51	57	69	78	73
Seychelles	3	4	3	3	3
Tahiti	1	2	2	3	–
U.S. Trust Territories	1	1	1	4	–
Other	5	7	17	31	69
TOTAL	172	255	260	340	409

[1] July/June.

USSR—which made the USSR Australia's most important market for the 1979/80 season—Australia's single largest market for rice exports is traditionally Papua New Guinea, which annually takes about 75,000 tons, mainly in retail packet form. In turn for an understanding that Australia will supply the whole of the Papua New Guinea market, Australia offers rice at a discounted c&f price.

Indonesia and Hong Kong are also large rice markets for Australia, although Australia only supplies about 5 and 15 percent, respectively, of these countries' annual rice imports. Exports to Hong Kong, which is the largest market for Australia's highest quality rice, are limited by export quotas.[28]

All sales of Australian rice are made on a cash basis, including about 100,000 tons sold annually to private traders for optional destinations.

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[28] "Rice: Situation and Outlook 1980," Bureau of Agricultural Economics (Canberra, 1979).

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